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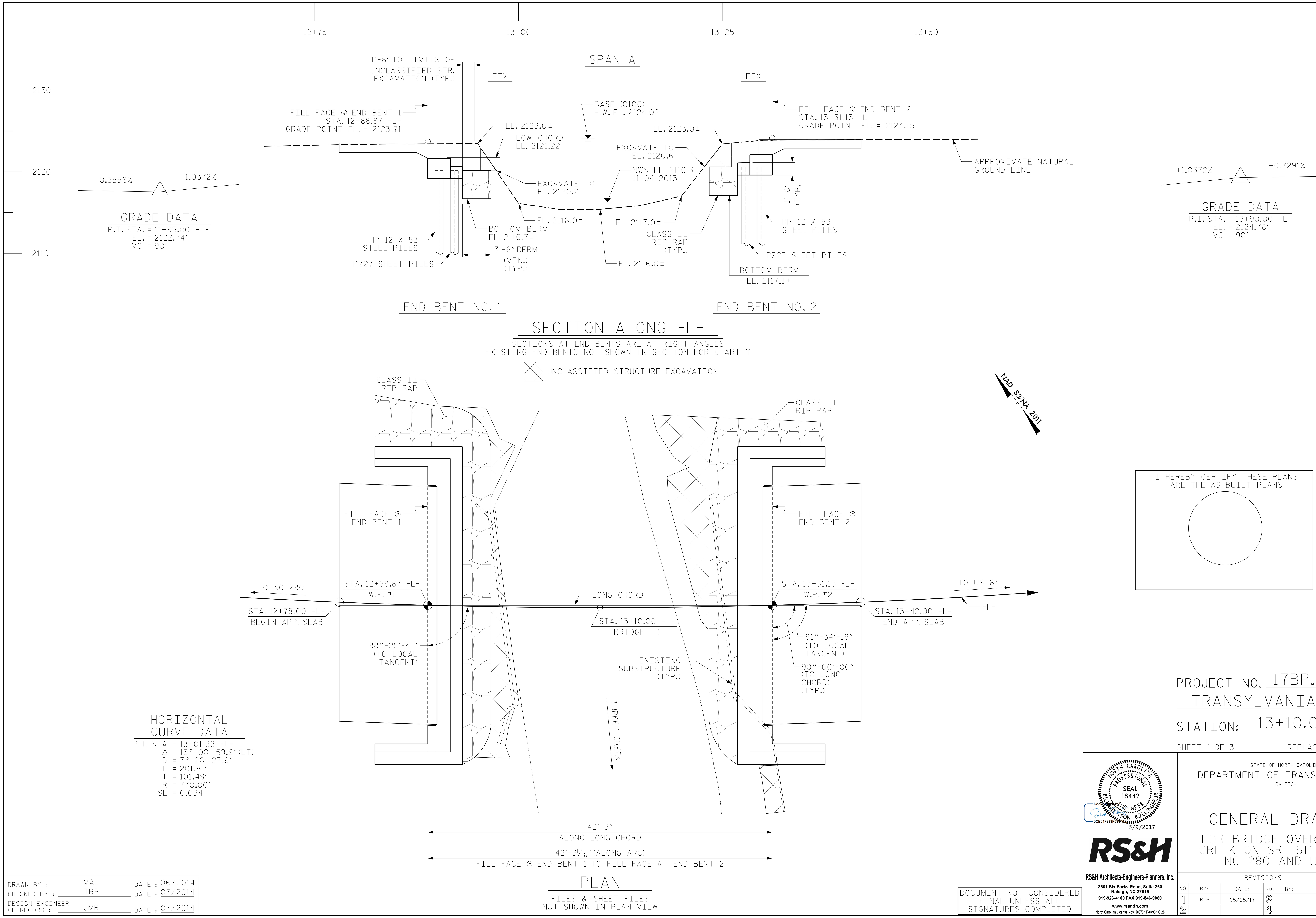
12+75
13+00
13+25
13+50
2130
2120
2110
SPAN A
FIX
FIX
1'-6" TO LIMITS OF UNCLASSIFIED STR. EXCAVATION (TYP.)
FILL FACE @ END BENT 1 STA. 12+88.87 -L- GRADE POINT EL. = 2123.71
EL. 2123.0±
LOW CHORD EL. 2121.22
BASE (Q100) H.W. EL. 2124.02
EL. 2123.0±
EXCAVATE TO EL. 2120.6
NWS EL. 2116.3 11-04-2013
FILL FACE @ END BENT 2 STA. 13+31.13 -L- GRADE POINT EL. = 2124.15
APPROXIMATE NATURAL GROUND LINE
EXCAVATE TO EL. 2120.2
EL. 2116.0±
EL. 2117.0±
CLASS II RIP RAP (TYP.)
1'-6" (TYP.)
HP 12 X 53 STEEL PILES
BOTTOM BERM EL. 2116.7±
HP 12 X 53 STEEL PILES
3'-6" BERM (MIN.) (TYP.)
PZ27 SHEET PILES
EL. 2116.0±
PZ27 SHEET PILES
BOTTOM BERM EL. 2117.1±
-0.3556%
+1.0372%
GRADE DATA
P.I. STA. = 11+95.00 -L-
EL. = 2122.74'
VC = 90'
+1.0372%
+0.7291%
GRADE DATA
P.I. STA. = 13+90.00 -L-
EL. = 2124.76'
VC = 90'
END BENT NO. 1
END BENT NO. 2
SECTION ALONG -L-
SECTIONS AT END BENTS ARE AT RIGHT ANGLES
EXISTING END BENTS NOT SHOWN IN SECTION FOR CLARITY
UNCLASSIFIED STRUCTURE EXCAVATION
NAD 83/NA 2011
CLASS II RIP RAP
CLASS II RIP RAP
FILL FACE @ END BENT 1
FILL FACE @ END BENT 2
TO NC 280
STA. 12+88.87 -L- W.P. #1
LONG CHORD
STA. 13+31.13 -L- W.P. #2
TO US 64
-L-
STA. 12+78.00 -L- BEGIN APP. SLAB
STA. 13+10.00 -L- BRIDGE ID
STA. 13+42.00 -L- END APP. SLAB
88°-25'-41" (TO LOCAL TANGENT)
91°-34'-19" (TO LOCAL TANGENT)
EXISTING SUBSTRUCTURE (TYP.)
90°-00'-00" (TO LONG CHORD) (TYP.)
TURKEY CREEK
HORIZONTAL CURVE DATA
P.I. STA. = 13+01.39 -L-
Δ = 15°-00'-59.9" (LT)
D = 7°-26'-27.6"
L = 201.81'
T = 101.49'
R = 770.00'
SE = 0.034
42'-3" ALONG LONG CHORD
42'-3 1/16" (ALONG ARC)
FILL FACE @ END BENT 1 TO FILL FACE AT END BENT 2
PLAN
PILES & SHEET PILES NOT SHOWN IN PLAN VIEW

I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS

PROJECT NO. 17BP.14.R.119

TRANSYLVANIA COUNTY

STATION: 13+10.00 -L-

SHEET 1 OF 3 REPLACES BRIDGE NO. 15

NORTH CAROLINA PROFESSIONAL SEAL 18442 ENGINEER RICHARD LEON BOLLINGER JR.

5/9/2017

RS&H

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www.rsandh.com
North Carolina License Nos. 50073 * F-0493 * C-28

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

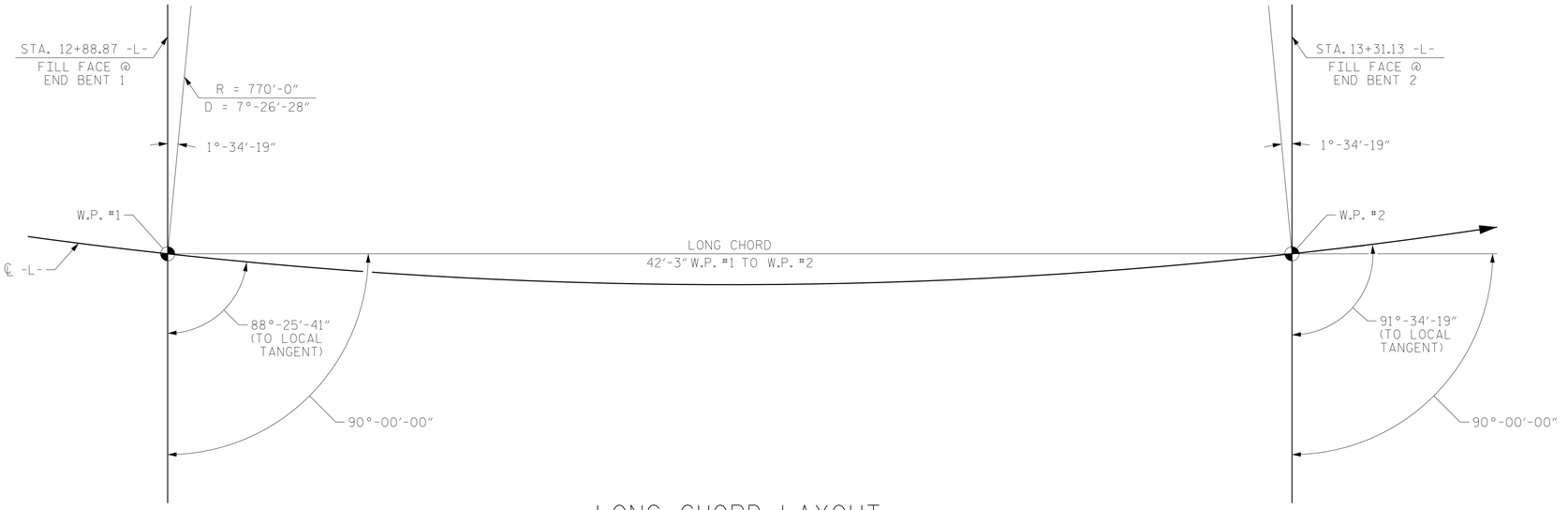
GENERAL DRAWING

FOR BRIDGE OVER TURKEY CREEK ON SR 1511 BETWEEN NC 280 AND US 64

REVISIONS							SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:		S-1
1	RLB	05/05/17	3				TOTAL SHEETS
2			4				14

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DRAWN BY :	MAL	DATE :	06/2014
CHECKED BY :	TRP	DATE :	07/2014
DESIGN ENGINEER OF RECORD :	JMR	DATE :	07/2014



LONG CHORD LAYOUT

NOTE: END BENTS ARE PARALLEL

PROJECT NO. 17BP.14.R.119

TRANSYLVANIA COUNTY

STATION: 13+10.00 -L-

SHEET 2 OF 3

NORTH CAROLINA PROFESSIONAL SEAL 036442 ENGINEER RICHARD LEON BOLTINER, JR.

7/26/2016

RS&H

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STATE OF NORTH CAROLINA
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RALEIGH

GENERAL DRAWING

FOR BRIDGE OVER TURKEY CREEK ON SR 1511 BETWEEN NC 280 AND US 64

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-2
1			3			TOTAL SHEETS
2			4			14

DRAWN BY : MAL DATE : 06/2014
CHECKED BY : TRP DATE : 07/2014
DESIGN ENGINEER OF RECORD : JMR DATE : 07/2014

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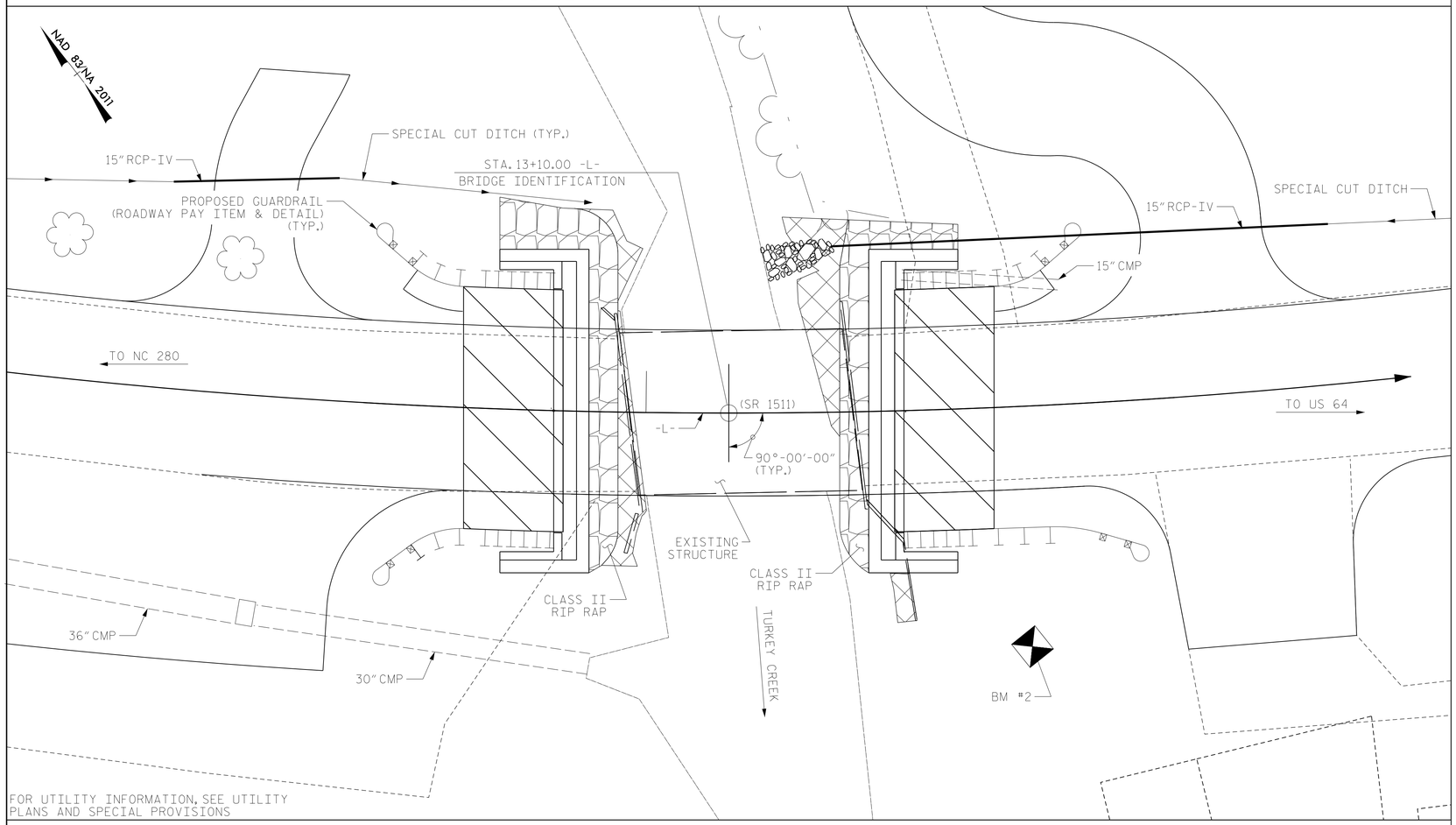
BENCHMARK #2: NAIL IN BASE OF POWER POLE 28.99' RT. OF STA. 13+45.31 -L- EL. 2122.80'



LOCATION SKETCH

NOTES

THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.

ASSUMED LIVE LOAD = HL 93 OR ALTERNATE LOADING.

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.

FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 25 FT LEFT AND 19 FT RIGHT OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.

THE SUBSTRUCTURE OF THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. SINCE THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR, THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN THE EXISTING SUBSTRUCTURE SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL INTO THE WATER. THE CONTRACTOR SHALL REMOVE THE BRIDGE AND SUBMIT PLANS FOR DEMOLITION IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL OF EXISTING STRUCTURE AT STATION 13+10.00 -L-.

THE EXISTING 1 SPAN STRUCTURE @ 27'-3" CONSISTING OF A TIMBER FLOOR ON SALVAGED I-BEAMS AND A SUBSTRUCTURE CONSISTING OF TIMBER CAPS & TIMBER POSTS AND SILLS AT VARIOUS CENTERS LOCATED AT THE SITE OF THE PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED FOR A LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE DETERIORATE DURING CONSTRUCTION OF THE PROPOSED BRIDGE, A LOAD LIMIT MAY BE POSTED AND MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

ASPHALT WEARING SURFACE IS INCLUDED IN ROADWAY QUANTITY ON ROADWAY PLANS.

THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH "HEC 18 - EVALUATING SCOUR AT BRIDGES."

FOR ASBESTOS ASSESSMENT, SEE SPECIAL PROVISIONS.

HYDRAULIC DATA

DESIGN DISCHARGE	= 1000 CFS
FREQUENCY OF DESIGN FLOOD	= 10 YRS
DESIGN HIGH WATER ELEVATION	= 2122.2
DRAINAGE AREA	= 5.67 SQ. MI.
BASE DISCHARGE (Q100)	= 2000 CFS
BASE HIGH WATER ELEVATION	= 2124.02

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	= 1245 CFS *
FREQUENCY OF OVERTOPPING FLOOD	= 10 YRS+
OVERTOPPING FLOOD ELEVATION	= 2122.7

* EXISTING LEVEL OF SERVICE IS BEING MAINTAINED

TOTAL BILL OF MATERIALS

	REMOVAL OF EXISTING STRUCTURE	UNCLASSIFIED STRUCTURE EXCAVATION	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	PILE DRIVING EQUIPMENT SETUP	HP 12 X 53 STEEL PILES		STEEL PILE POINTS	PRE-DRILLING FOR PILES	18" GALVANIZED STEEL SHEET PILES	VERTICAL CONCRETE BARRIER RAIL	RIP RAP CLASS II	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLABS		ASBESTOS ASSESSMENT
	LUMP SUM	LUMP SUM	CU. YDS.	LUMP SUM	LBS.	EACH	NO.	LIN. FT.	EACH	LIN. FT.	SQ. FT.	LIN. FT.	TONS	SQ. YDS.	LUMP SUM	NO.	LIN. FT.	LUMP SUM
SUPERSTRUCTURE				LUMP SUM								80.25			LUMP SUM	10	400	
END BENT 1		LUMP SUM	17.9		2477	7	5	75	5	50	380		32	34				
END BENT 2		LUMP SUM	17.9		2477	7	5	75	5	50	350		31	33				
TOTAL	LUMP SUM	LUMP SUM	35.8	LUMP SUM	4954	14	10	150	10	100	730	80.25	63	67	LUMP SUM	10	400	LUMP SUM

FOUNDATION NOTES

FOR PILES, SEE GEOTECHNICAL SPECIAL PROVISIONS AND SECTION 450 OF THE STANDARD SPECIFICATIONS.

PILES AT END BENTS NO. 1 AND 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 70 TONS PER PILE.

DRIVE PILES AT END BENTS NO. 1 AND 2 TO A REQUIRED DRIVING RESISTANCE OF 120 TONS PER PILE.

STEEL H-PILE POINTS ARE REQUIRED FOR STEEL H-PILES. FOR STEEL PILE POINTS, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

PREDRILLING FOR PILES IS REQUIRED AT END BENT NO. 2 TO ELEVATION 2109 FT WITH EQUIPMENT THAT WILL RESULT IN A MAXIMUM PREDRILLING DIAMETER OF 10". FOR PREDRILLING FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

PROJECT NO. 17BP.14.R.119

TRANSYLVANIA COUNTY

STATION: 13+10.00 -L-

SHEET 3 OF 3

DRAWN BY : MAL DATE : 06/2014
CHECKED BY : TRP DATE : 07/2014
DESIGN ENGINEER OF RECORD : JMR DATE : 07/2014

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NORTH CAROLINA PROFESSIONAL SEAL 18442 ENGINEER RICHARD LEON BOLLINGER JR
5/9/2017

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE OVER TURKEY CREEK ON SR 1511 BETWEEN NC 280 AND US 64

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-3
1	RLB	05/05/17	3			TOTAL SHEETS
2			4			14

LOAD AND RESISTANCE FACTOR RATING (LRFD) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS

LEVEL		VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING	MINIMUM RATING FACTORS (RF)	TONS = W X RF	STRENGTH I LIMIT STATE											SERVICE III LIMIT STATE						COMMENT NUMBER
								MOMENT					SHEAR						MOMENT					
							LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING		HL-93(Inv)	N/A	1	1.319	--	1.75	0.278	1.76	A	EL	19.5	0.549	1.32	A	EL	1.95	0.80	0.278	1.55	A	EL	19.5	
		HL-93(Opr)	N/A	--	1.709	--	1.35	0.278	2.28	A	EL	19.5	0.549	1.71	A	EL	1.95	N/A	--	--	--	--	--	
		HS-20(Inv)	36.000	2	1.540	55.449	1.75	0.278	2.21	A	EL	19.5	0.549	1.54	A	EL	1.95	0.80	0.278	1.94	A	EL	19.5	
		HS-20(Opr)	36.000	--	1.997	71.878	1.35	0.278	2.86	A	EL	19.5	0.549	2	A	EL	1.95	N/A	--	--	--	--	--	
LEGAL LOAD RATING	SV	SNSH	13.500	--	3.606	48.687	1.4	0.278	5.1	A	EL	19.5	0.549	4.13	A	EL	1.95	0.80	0.278	3.61	A	EL	19.5	
		SNGARBS2	20.000	--	2.964	59.289	1.4	0.278	4.19	A	EL	15.6	0.549	3.07	A	EL	1.95	0.80	0.278	2.96	A	EL	19.5	
		SNAGRIS2	22.000	--	2.906	63.929	1.4	0.278	4.09	A	EL	15.6	0.549	2.91	A	EL	1.95	0.80	0.278	2.92	A	EL	15.6	
		SNCOTTS3	27.250	--	1.803	49.125	1.4	0.278	2.55	A	EL	19.5	0.549	2.07	A	EL	1.95	0.80	0.278	1.80	A	EL	19.5	
		SNAGGRS4	34.925	--	1.623	56.667	1.4	0.278	2.29	A	EL	19.5	0.549	1.82	A	EL	1.95	0.80	0.278	1.62	A	EL	19.5	
		SNS5A	35.550	--	1.578	56.107	1.4	0.278	2.23	A	EL	19.5	0.549	1.9	A	EL	1.95	0.80	0.278	1.58	A	EL	19.5	
		SNS6A	39.950	--	1.502	59.992	1.4	0.278	2.12	A	EL	19.5	0.549	1.77	A	EL	1.95	0.80	0.278	1.50	A	EL	19.5	
		SNS7B	42.000	3	1.432	60.149	1.4	0.278	2.02	A	EL	19.5	0.549	1.81	A	EL	1.95	0.80	0.278	1.43	A	EL	19.5	
	TTST	TNAGRIT3	33.000	--	1.848	60.976	1.4	0.278	2.61	A	EL	19.5	0.549	2.08	A	EL	1.95	0.80	0.278	1.85	A	EL	19.5	
		TNT4A	33.075	--	1.872	61.901	1.4	0.278	2.65	A	EL	19.5	0.549	1.98	A	EL	1.95	0.80	0.278	1.87	A	EL	19.5	
		TNT6A	41.600	--	1.587	66.032	1.4	0.278	2.24	A	EL	19.5	0.549	1.94	A	EL	1.95	0.80	0.278	1.59	A	EL	19.5	
		TNT7A	42.000	--	1.627	68.354	1.4	0.278	2.3	A	EL	19.5	0.549	1.79	A	EL	1.95	0.80	0.278	1.63	A	EL	19.5	
		TNT7B	42.000	--	1.664	69.888	1.4	0.278	2.35	A	EL	19.5	0.549	1.72	A	EL	1.95	0.80	0.278	1.66	A	EL	19.5	
		TNAGRIT4	43.000	--	1.619	69.61	1.4	0.278	2.28	A	EL	15.6	0.549	1.65	A	EL	1.95	0.80	0.278	1.62	A	EL	19.5	
		TNAGT5A	45.000	--	1.498	67.412	1.4	0.278	2.12	A	EL	19.5	0.549	1.71	A	EL	1.95	0.80	0.278	1.50	A	EL	19.5	
		TNAGT5B	45.000	--	1.455	65.486	1.4	0.278	2.06	A	EL	19.5	0.549	1.56	A	EL	1.95	0.80	0.278	1.46	A	EL	19.5	

LOAD FACTORS:

DESIGN LOAD RATING FACTORS	LIMIT STATE	γ_{DC}	γ_{DW}
	STRENGTH I	1.25	1.50
	SERVICE III	1.00	1.00

NOTES:

MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.

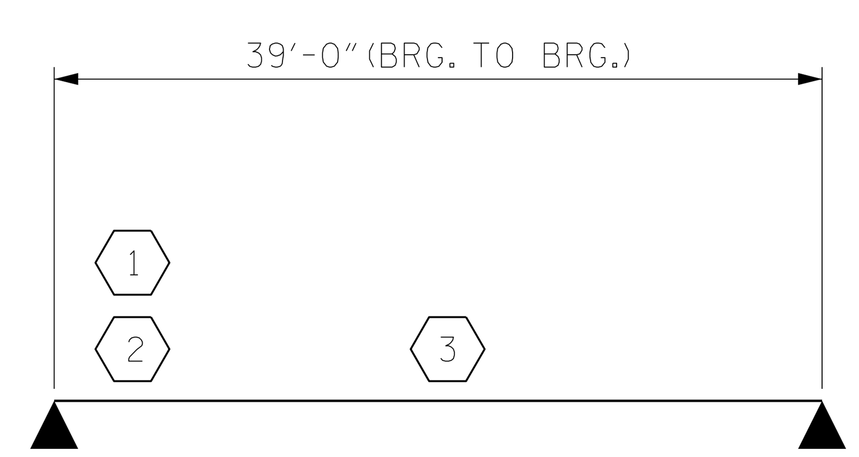
ALLOWABLE STRESSES FOR SERVICE III LIMIT STATE ARE AS REQUIRED FOR DESIGN.

COMMENTS:

1.
2.
3.
4.

CONTROLLING LOAD RATING
1 DESIGN LOAD RATING (HL-93)
2 DESIGN LOAD RATING (HS-20)
3 LEGAL LOAD RATING **
** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION
I - INTERIOR GIRDER
EL - EXTERIOR LEFT GIRDER
ER - EXTERIOR RIGHT GIRDER



LRFR SUMMARY

FOR SPAN A

PROJECT NO. 17BP.14.R.119
TRANSYLVANIA COUNTY
STATION: 13+10.00 -L-

SEAL 18442 7/26/2016

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

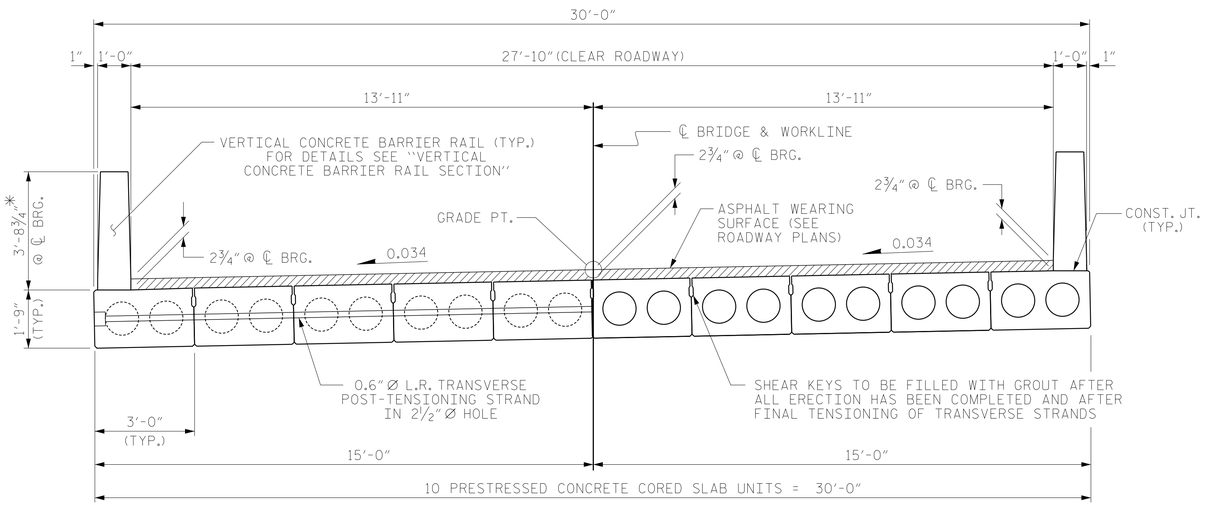
STANDARD
LRFR SUMMARY FOR 40' CORED SLAB UNIT 90° SKEW
(NON-INTERSTATE TRAFFIC)

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ASSEMBLED BY : MAL	DATE : 06/2014
CHECKED BY : TRP	DATE : 07/2014
DRAWN BY : CVC 6/10	
CHECKED BY : DNS 6/10	

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-4
1			3			TOTAL SHEETS
2			4			14

STD. NO. 21LRFR1_90S_40L



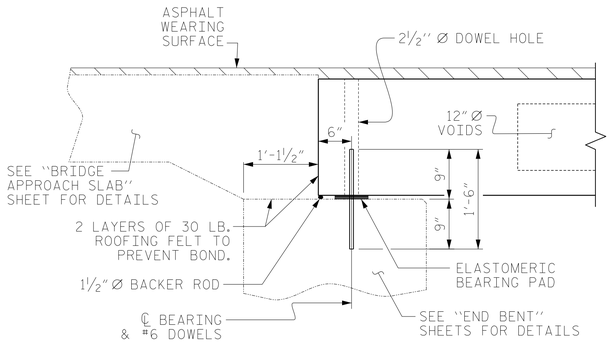
HALF SECTION
AT INTERMEDIATE DIAPHRAGMS

HALF SECTION
THROUGH VOIDS

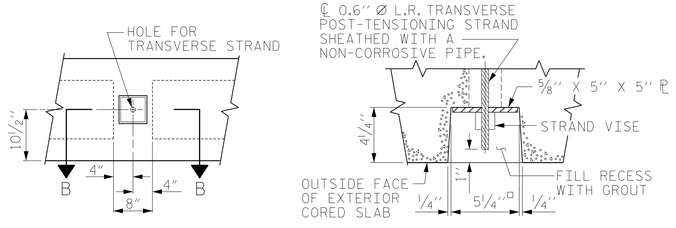
TYPICAL SECTION

*- THE MAXIMUM BARRIER RAIL HEIGHT AND ASPHALT THICKNESS IS SHOWN. THE HEIGHT OF THE BARRIER RAIL AND ASPHALT THICKNESS VARIES WHILE THE TOP OF THE BARRIER RAIL FOLLOWS THE PROFILE OF THE GUTTERLINE. FOR RAIL HEIGHT DETAILS AND ASPHALT THICKNESS SEE THE ″VERTICAL CONCRETE BARRIER RAIL SECTION″ DETAIL.

FIXED END



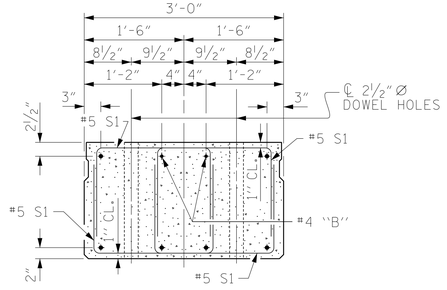
SECTION AT END BENT



ELEVATION VIEW

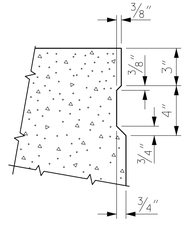
SECTION B-B

GROUTED RECESS AT END OF POST-TENSIONED STRAND OF CORED SLABS



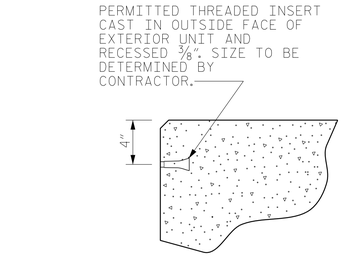
END ELEVATION

SHOWING PLACEMENT OF DOUBLE STIRRUPS AND LOCATION OF DOWEL HOLES. (STRAND LAYOUT NOT SHOWN.) INTERIOR SLAB UNIT SHOWN-EXTERIOR SLAB UNIT SIMILAR EXCEPT SHEAR KEY LOCATION.

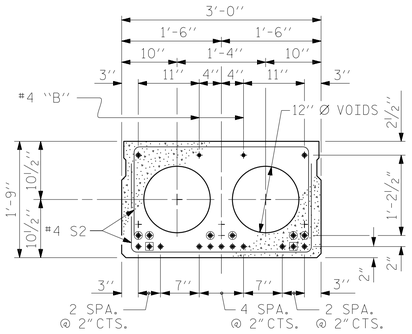


SHEAR KEY DETAIL

NOTE: OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR CORED SLABS.

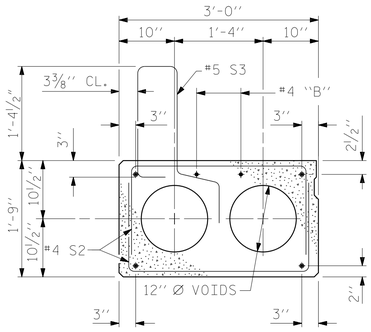


THREADED INSERT DETAIL



INTERIOR SLAB SECTION
(40′ UNIT)
(13 STRANDS REQUIRED)

0.6″Ø LOW RELAXATION STRAND LAYOUT



EXT. SLAB SECTION

(FOR PRESTRESSED STRAND LAYOUT, SEE INTERIOR SLAB SECTION.)

◉ BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 2′-0″ FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.

◉ OPTIONAL FULL LENGTH DEBONDED STRANDS. THESE STRANDS ARE NOT REQUIRED. IF THE FABRICATOR CHOOSES TO INCLUDE THESE STRANDS IN THE CORED SLAB UNIT, THE STRANDS SHALL BE DEBONDED FOR THE FULL LENGTH OF THE UNIT AT NO ADDITIONAL COST. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.

DEBONDING LEGEND

PROJECT NO. 17BP.14.R.119
TRANSYLVANIA COUNTY
STATION: 13+10.00 -L-

SHEET 1 OF 3

ASSEMBLED BY :	MAL	DATE :	06/2014
CHECKED BY :	TRP	DATE :	07/2014
DRAWN BY : DGE	5/09	REV. 12/11	MAA/AAC
CHECKED BY : BCH	6/09	REV. 8/14	MAA/TMG

NORTH CAROLINA PROFESSIONAL SEAL 18442 ENGINEER TIMOTHY LEON BOLLINGER, JR.
7/26/2016

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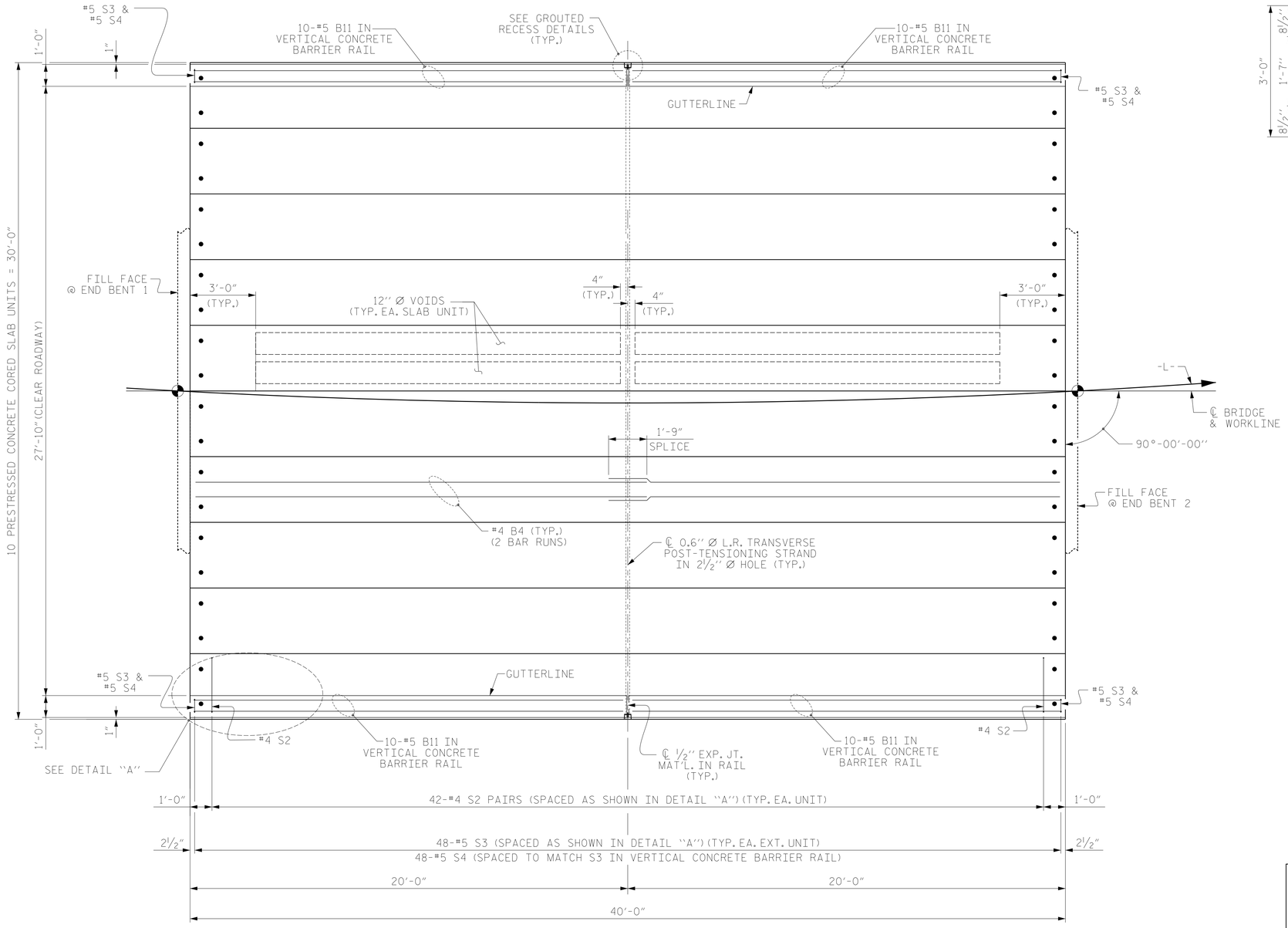
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

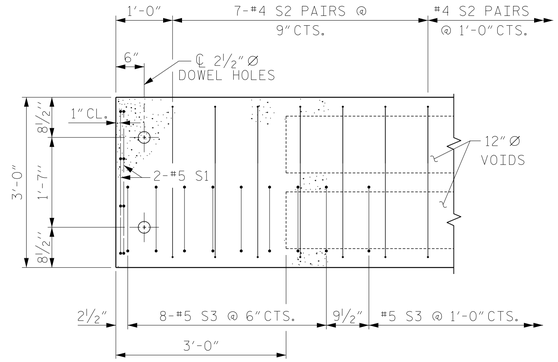
STANDARD
3′-0″ X 1′-9″
PRESTRESSED CONCRETE
CORED SLAB UNIT
90° SKEW

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTAL SHEETS
2			4			14

STD. NO. 21″PCS2_30_90S



PLAN OF SPAN A



DETAIL "A"

(TYPICAL EACH END OF UNIT)
NOTE: EXTERIOR UNIT SHOWN - INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S3 BARS.

PROJECT NO. 17BP.14.R.119
TRANSYLVANIA COUNTY
STATION: 13+10.00 -L-

SHEET 2 OF 3

ASSEMBLED BY :	MAL	DATE :	06/2014
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7/26/2016

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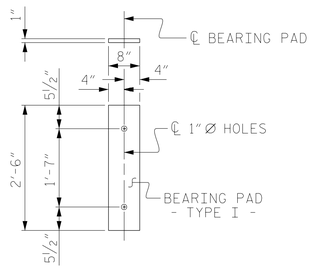
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF 40' UNIT 27'-10" CLEAR ROADWAY 90° SKEW

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-6
1			3			TOTAL SHEETS
2			4			14

STD. NO. 21"PCS_30_90S_40L



FIXED END
(TYPE I - 20 REQ'D)

ELASTOMERIC BEARING DETAILS

ELASTOMER IN ALL BEARINGS SHALL BE 50 DUROMETER HARDNESS.

GUTTERLINE ASPHALT THICKNESS & RAIL HEIGHT		
27'-10" CLEAR ROADWAY	ASPHALT OVERLAY THICKNESS	RAIL HEIGHT
	@ MID-SPAN	@ MID-SPAN
40' UNIT	2"	3'-8"

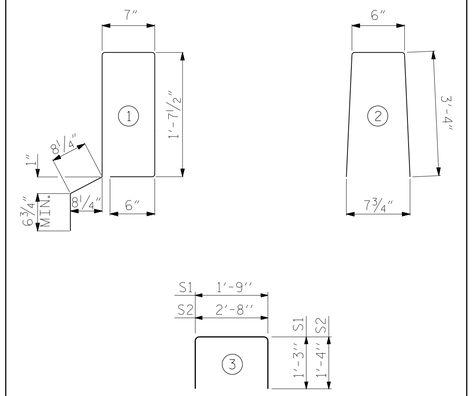
DEAD LOAD DEFLECTION AND CAMBER	
	3'-0" x 1'-9"
40' CORED SLAB UNIT	0.6" Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	⅞" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	⅛" ↓
FINAL CAMBER	¾" ↑

** INCLUDES FUTURE WEARING SURFACE

BILL OF MATERIAL FOR ONE 40' CORED SLAB UNIT

				EXTERIOR UNIT		INTERIOR UNIT	
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT
B4	4	#4	STR	20'-9"	55	20'-9"	55
S1	8	#5	3	4'-3"	35	4'-3"	35
S2	84	#4	3	5'-4"	299	5'-4"	299
* S3	48	#5	1	5'-7"	280		
REINFORCING STEEL			LBS.		389		389
*EPOXY COATED REINFORCING STEEL			LBS.		280		
6500 P.S.I. CONCRETE			CU. YDS.		5.8		5.8
0.6" Ø L.R. STRANDS			No.		13		13

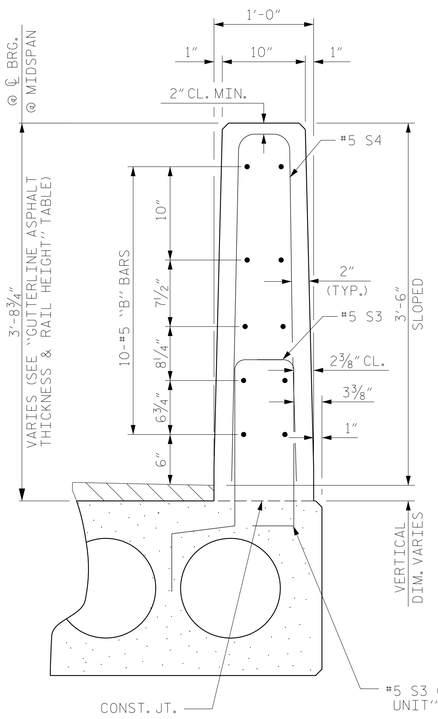
BAR TYPES



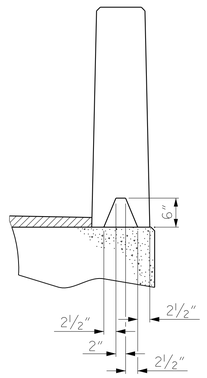
ALL BAR DIMENSIONS ARE OUT TO OUT

CONCRETE RELEASE STRENGTH	
UNIT	PSI
40' UNIT	4000

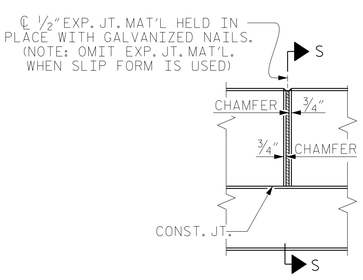
GRADE 270 STRANDS	
	0.6" Ø L.R.
AREA (SQUARE INCHES)	0.217
ULTIMATE STRENGTH (LBS. PER STRAND)	58,600
APPLIED PRESTRESS (LBS. PER STRAND)	43,950



VERTICAL CONCRETE BARRIER RAIL SECTION



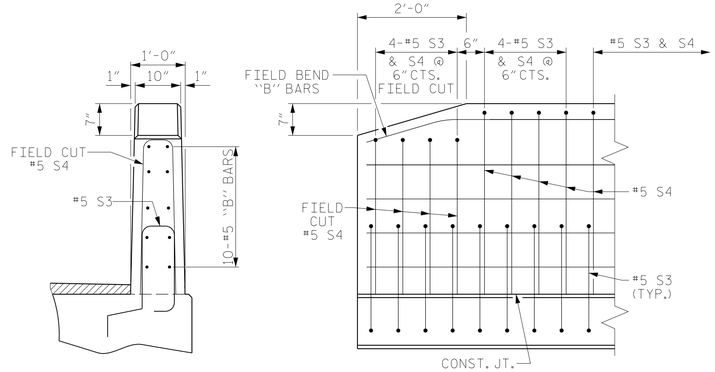
SECTION S-S
AT DAM IN OPEN JOINT
(THIS IS TO BE USED ONLY WHEN SLIP FORM IS USED)



ELEVATION AT EXPANSION JOINTS

BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL

BAR	BARS PER PAIR OF EXTERIOR UNITS 40' UNIT	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
*B11	40	40	#5	STR	19'-7"	817
* S4	96	96	#5	2	7'-2"	718
*EPOXY COATED REINFORCING STEEL				LBS.		1535
CLASS AA CONCRETE				CU. YDS.		10.2
TOTAL VERTICAL CONCRETE BARRIER RAIL				LN. FT.		80.25



END VIEW

SIDE VIEW

END OF RAIL DETAILS

NOTES

ALL PRESTRESSING STRANDS SHALL BE 7-WIRE LOW RELAXATION GRADE 270 STRANDS AND SHALL CONFORM TO AASHTO M203 EXCEPT FOR SAMPLING REQUIREMENTS WHICH SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

ALL REINFORCING STEEL CAST WITH THE CORED SLAB SECTIONS SHALL BE GRADE 60 AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE CORED SLABS.

RECESSES FOR TRANSVERSE STRANDS SHALL BE GROUTED AFTER THE TENSIONING OF THE STRANDS.

THE 2½" Ø DOWEL HOLES AT FIXED ENDS OF SLAB SECTIONS SHALL BE FILLED WITH NON-SHRINK GROUT.

THE BACKER RODS SHALL CONFORM TO THE REQUIREMENTS OF TYPE M BOND BREAKER. SEE SECTION 1028 OF THE STANDARD SPECIFICATIONS.

WHEN CORED SLABS ARE CAST, AN INTERNAL HOLD-DOWN SYSTEM SHALL BE EMPLOYED TO PREVENT VOIDS FROM RISING OR MOVING SIDEWAYS. AT LEAST SIX WEEKS PRIOR TO CASTING CORED SLABS, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR REVIEW AND COMMENT, DETAILED DRAWINGS OF THE PROPOSED HOLD-DOWN SYSTEM. IN ADDITION TO STRUCTURAL DETAILS, LOCATION AND SPACING OF THE HOLD-DOWNS SHALL BE INDICATED.

ALL REINFORCING STEEL IN THE VERTICAL CONCRETE BARRIER RAIL SHALL BE EPOXY COATED.

PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE CORED SLAB UNIT ENDS.

APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS.

GROOVED CONTRACTION JOINTS, ½" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE BARRIER RAIL AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. A CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN BARRIER RAIL EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT MIDPOINT OF BARRIER RAIL SEGMENTS LESS THAN 20 FEET IN LENGTH AND NO CONTRACTION JOINTS ARE REQUIRED FOR THOSE SEGMENTS LESS THAN 10 FEET IN LENGTH.

FLAME CUTTING OF THE TRANSVERSE POST-TENSIONING STRAND IS NOT ALLOWED.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE CORED SLAB UNIT SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN THE REQUIRED STRENGTH SHOWN IN THE "CONCRETE RELEASE STRENGTH" TABLE.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

THE PERMITTED THREADED INSERTS ARE DETAILED AS AN OPTION FOR THE CONTRACTOR TO ATTACH FALSEWORK AND FORMWORK DURING CONSTRUCTION.

THE PERMITTED THREADED INSERTS IN THE EXTERIOR UNITS SHALL BE SIZED BY THE CONTRACTOR, SPACED AT 4'-0" CENTERS AND GALVANIZED IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS.

STAINLESS STEEL THREADED INSERTS MAY BE USED AS AN ALTERNATE. THE PERMITTED THREADED INSERTS SHALL BE GROUTED BY THE CONTRACTOR IMMEDIATELY FOLLOWING REMOVAL OF THE FALSEWORK.

THE COST OF THE PERMITTED THREADED INSERTS SHALL BE INCLUDED IN THE PRICE BID FOR THE PRECAST UNITS.

CORED SLABS REQUIRED			
	NUMBER	LENGTH	TOTAL LENGTH
40' UNIT			
EXTERIOR C.S.	2	40'-0"	80'-0"
INTERIOR C.S.	8	40'-0"	320'-0"
TOTAL	10		400'-0"

PROJECT NO. 17BP.14.R.119
TRANSYLVANIA COUNTY
STATION: 13+10.00 -L-

SHEET 3 OF 3

NORTH CAROLINA PROFESSIONAL SEAL 18442 ENGINEER RICHARD LEON BOLLINGER, JR.
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5/9/2017

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
3'-0" X 1'-9"
PRESTRESSED CONCRETE
CORED SLAB UNIT
90° SKEW

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-7
1	RLB	05/05/17	3			TOTAL SHEETS
2			4			14

ASSEMBLED BY :	MAL	DATE : 06/2014
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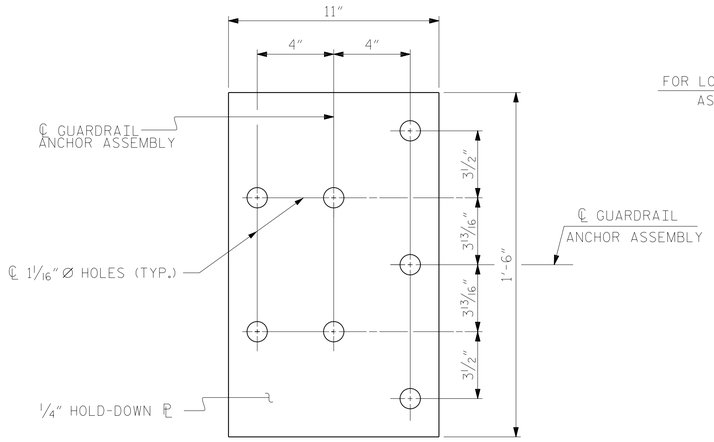
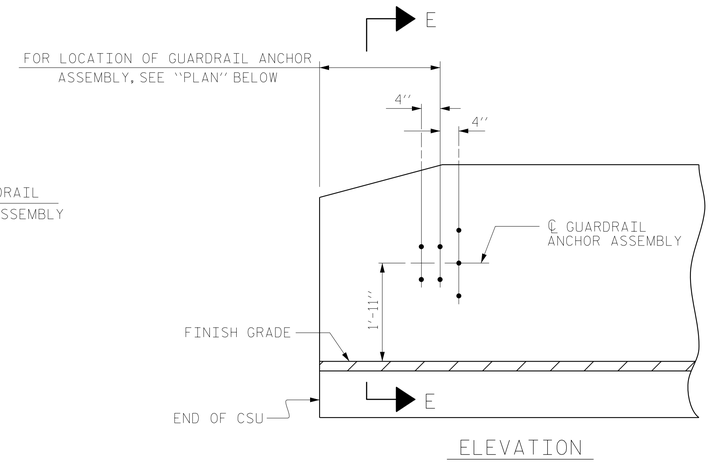
STD. NO. 21"PCS3_30_90S



PLAN



ELEVATION

NOTES

THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4" HOLD DOWN PLATE AND 7 - 7/8" Ø BOLTS WITH NUTS AND WASHERS.

THE HOLD-DOWN PLATE SHALL CONFORM TO AASHTO M270 GRADE 36. AFTER FABRICATION, THE HOLD-DOWN PLATE SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH AASHTO M111.

BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 7/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)

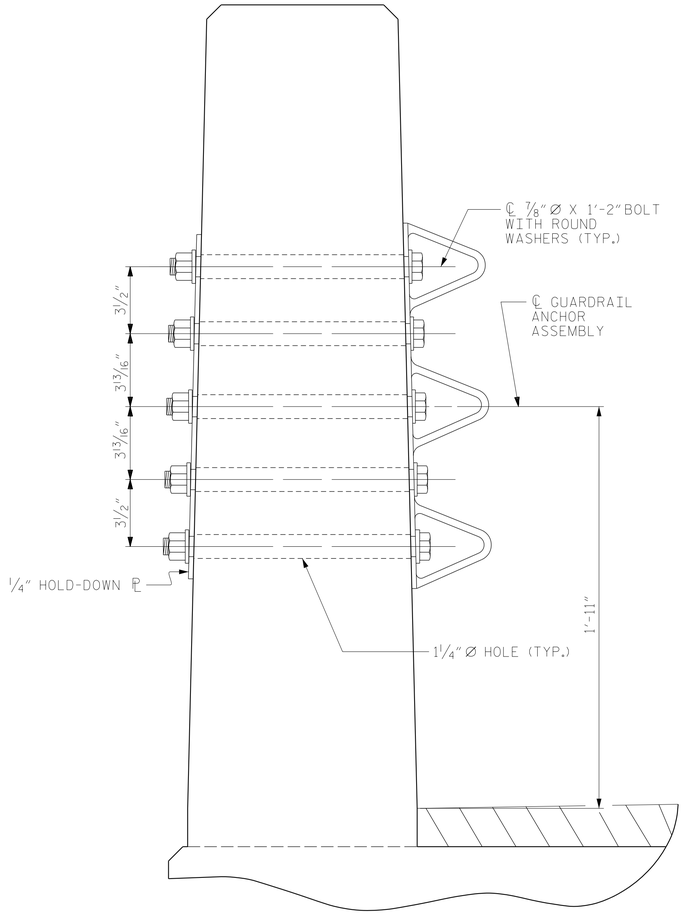
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

AFTER INSTALLATION, THE EXPOSED THREAD OF THE BOLT SHALL BE BURRED WITH A SHARP POINTED TOOL.

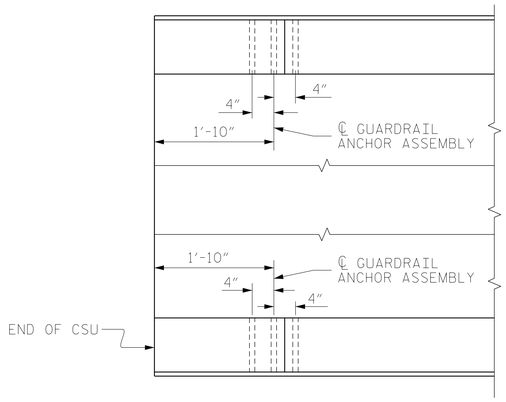
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR VERTICAL CONCRETE BARRIER RAIL.

THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE VERTICAL CONCRETE BARRIER RAIL TO CLEAR ASSEMBLY BOLTS.

THE 1 1/4" Ø HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.



SECTION E-E



PLAN

SKETCH SHOWING POINTS OF ATTACHMENT

✳ DENOTES GUARDRAIL ANCHOR ASSEMBLY

GUARDRAIL ANCHOR ASSEMBLY DETAILS

LOCATION OF ANCHORS FOR GUARDRAIL

END BENT #1 SHOWN, END BENT #2 SIMILAR.

PROJECT NO. 17BP.14.R.119

TRANSYLVANIA COUNTY

STATION: 13+10.00 -L-

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DRAWN BY :	MAA 5/10	ADDED	5/6/10
CHECKED BY :	GM 5/10	REV.	10/1/11 MAA/GM
		REV.	12/5/11 MAA/GM

NORTH CAROLINA PROFESSIONAL SEAL 18442 ENGINEER RICHARD LEON BOLLINGER JR

Docusigned by: Richard Bollinger SCB2173B3...

5/9/2017

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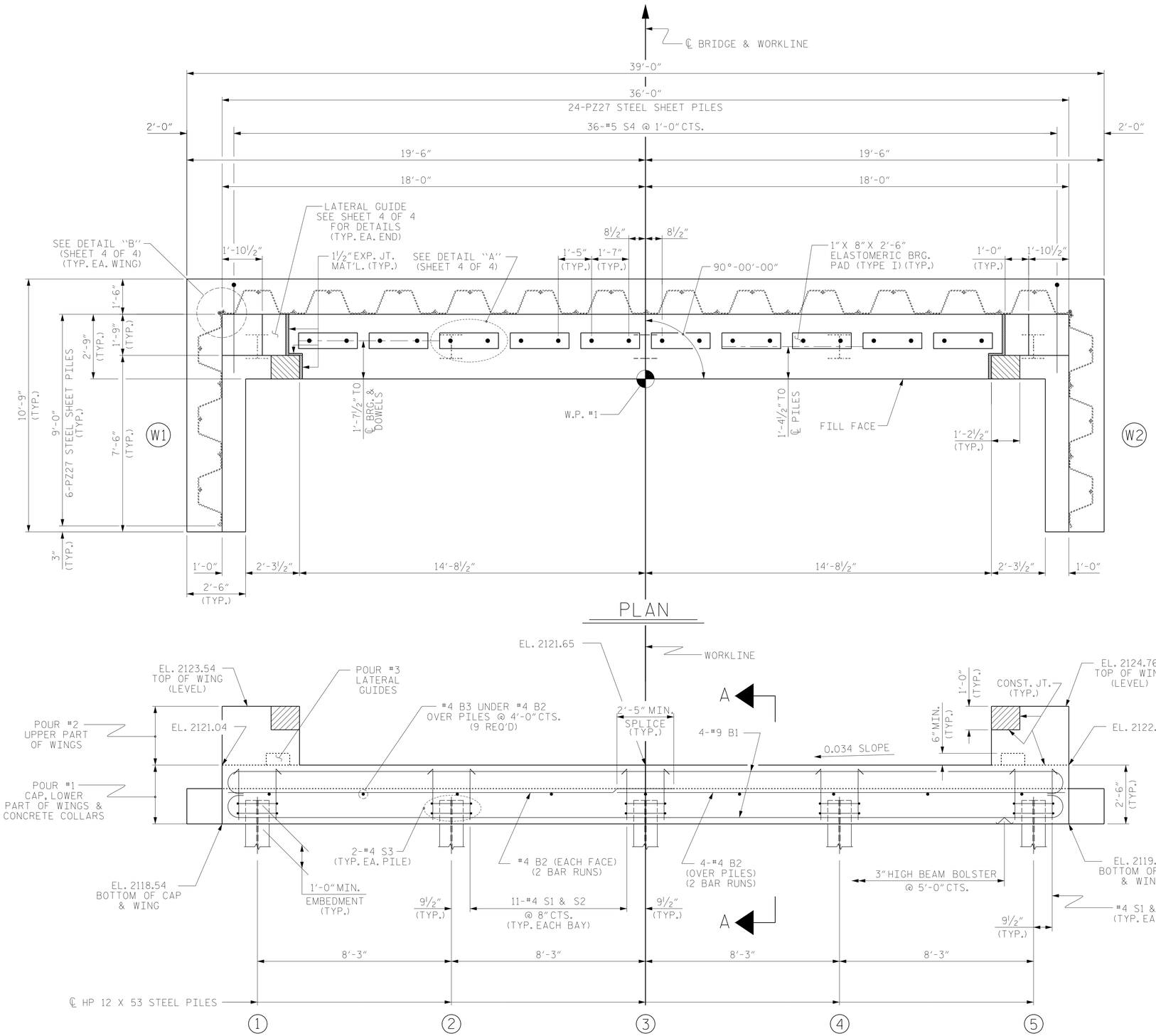
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
GUARDRAIL ANCHORAGE FOR VERTICAL CONCRETE BARRIER RAIL

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8
1	RLB	05/05/17	3			TOTAL SHEETS
2			4			14

STD. NO. GRA3



PLAN

ELEVATION

WINGS NOT SHOWN FOR CLARITY.
FOR SECTION A-A, SEE SHEET 4 OF 4.
CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.
SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 4 OF 4.

NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

THE LATERAL GUIDES ARE NOT TO BE POURED UNTIL AFTER THE CORED SLAB UNITS ARE IN PLACE.

THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.

FOR WING DETAILS, SEE SHEET 3 OF 4.

THE CONTRACTOR HAS THE OPTION TO OMIT THE LATERAL GUIDE IF APPROVED BY THE ENGINEER.

TOP OF PILE ELEVATIONS	
1	2119.61
2	2119.89
3	2120.17
4	2120.45
5	2120.73

PROJECT NO. 17BP.14.R.119
TRANSYLVANIA COUNTY
STATION: 13+10.00 -L-

SHEET 1 OF 4

DRAWN BY : MAL DATE : 06/2014
CHECKED BY : TRP DATE : 07/2014
DESIGN ENGINEER OF RECORD : JMR DATE : 07/2014

NORTH CAROLINA PROFESSIONAL SEAL 18442 ENGINEER CHARLES LEON BOLLINGER, JR
7/26/2016

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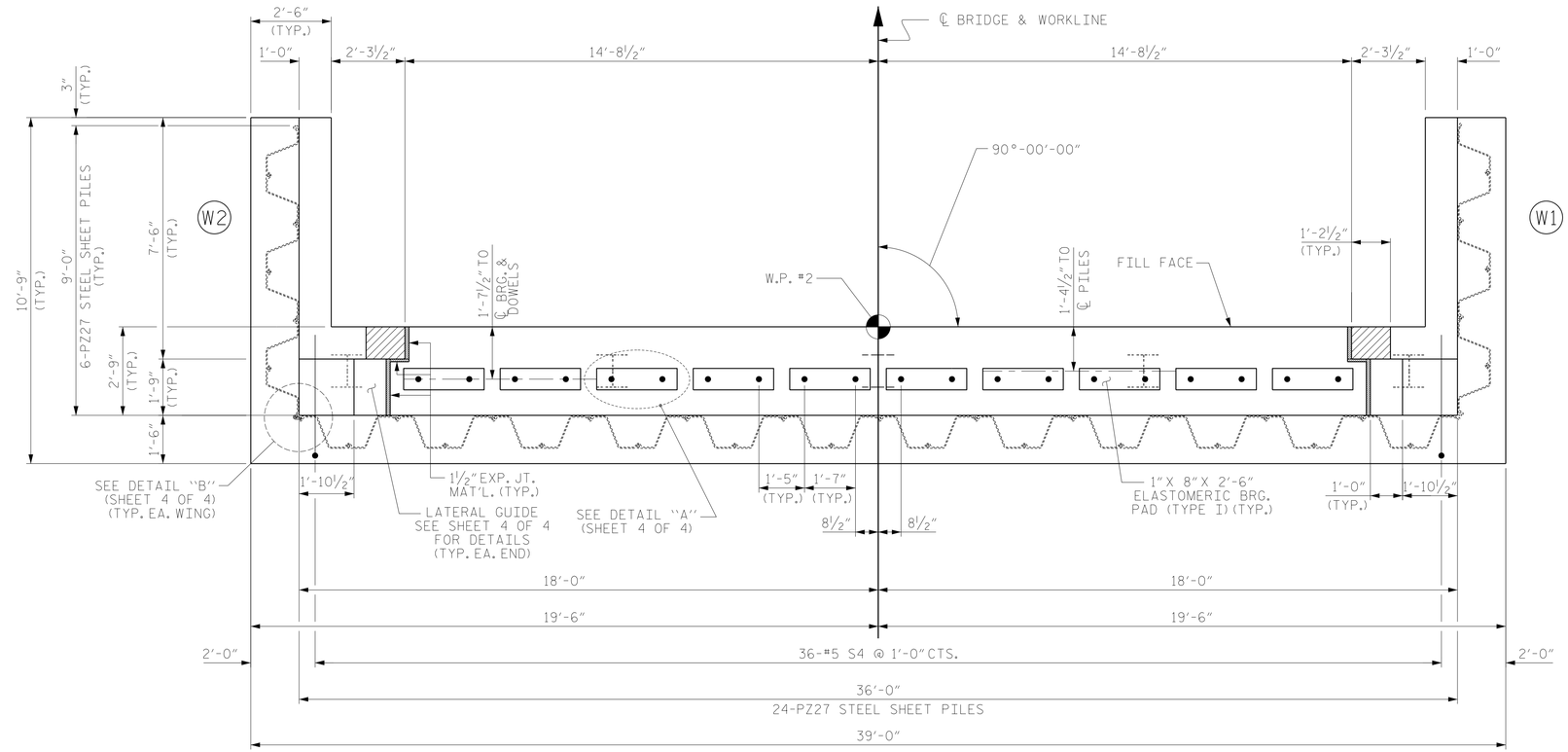
RALEIGH

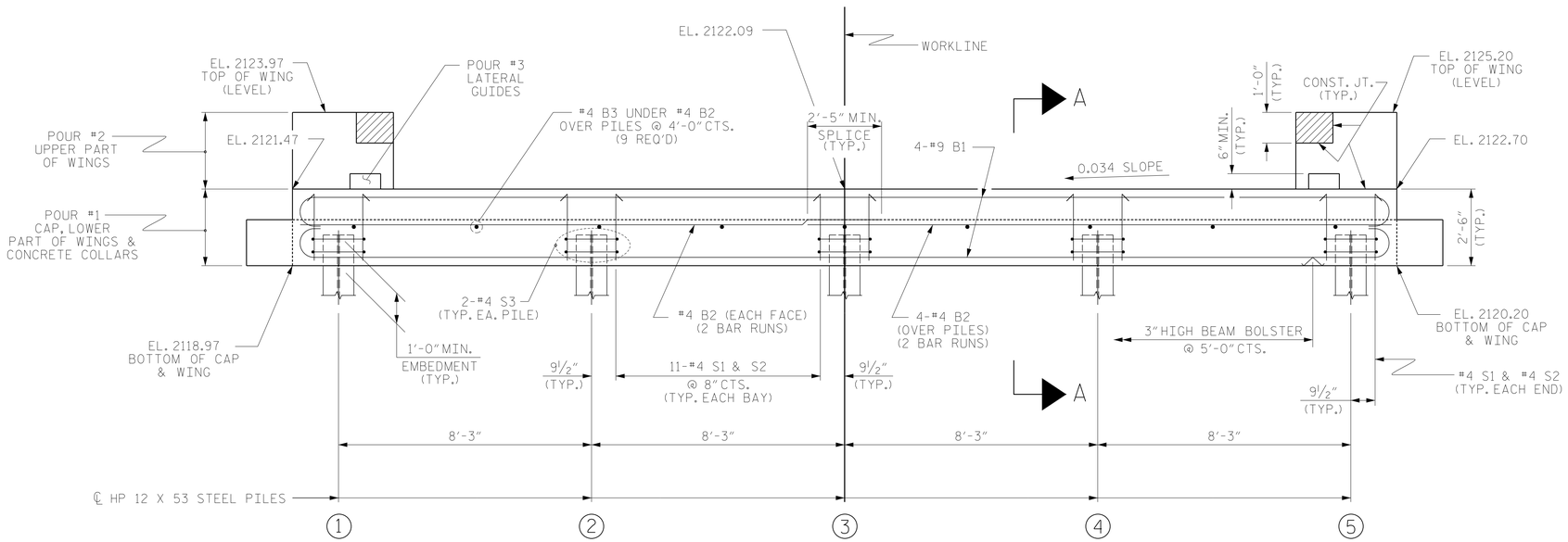
SUBSTRUCTURE

END BENT No. 1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9
1			3			TOTAL SHEETS
2			4			14



PLAN



ELEVATION

WINGS NOT SHOWN FOR CLARITY.
FOR SECTION A-A, SEE SHEET 4 OF 4.
CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.
SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 4 OF 4.

NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

THE LATERAL GUIDES ARE NOT TO BE POURED UNTIL AFTER THE CORED SLAB UNITS ARE IN PLACE.

THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.

FOR WING DETAILS, SEE SHEET 3 OF 4.

THE CONTRACTOR HAS THE OPTION TO OMIT THE LATERAL GUIDE IF APPROVED BY THE ENGINEER.

TOP OF PILE ELEVATIONS

1	2120.04
2	2120.32
3	2120.60
4	2120.88
5	2121.16

PROJECT NO. 17BP.14.R.119
TRANSYLVANIA COUNTY
STATION: 13+10.00 -L-

SHEET 2 OF 4

DRAWN BY : MAL DATE : 06/2014
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DESIGN ENGINEER OF RECORD : JMR DATE : 07/2014

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7/26/2016

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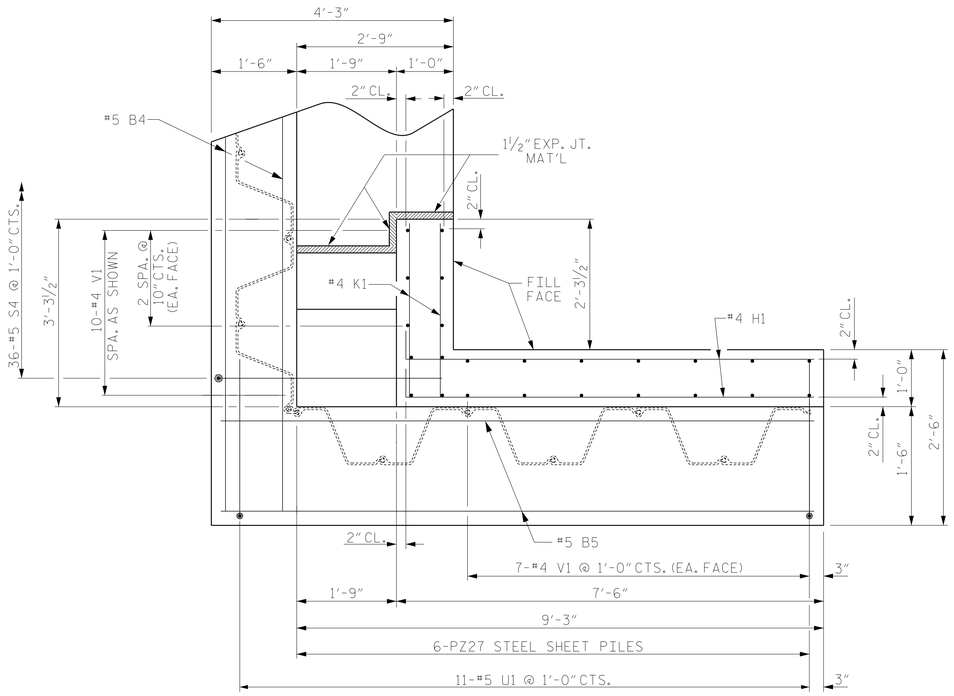
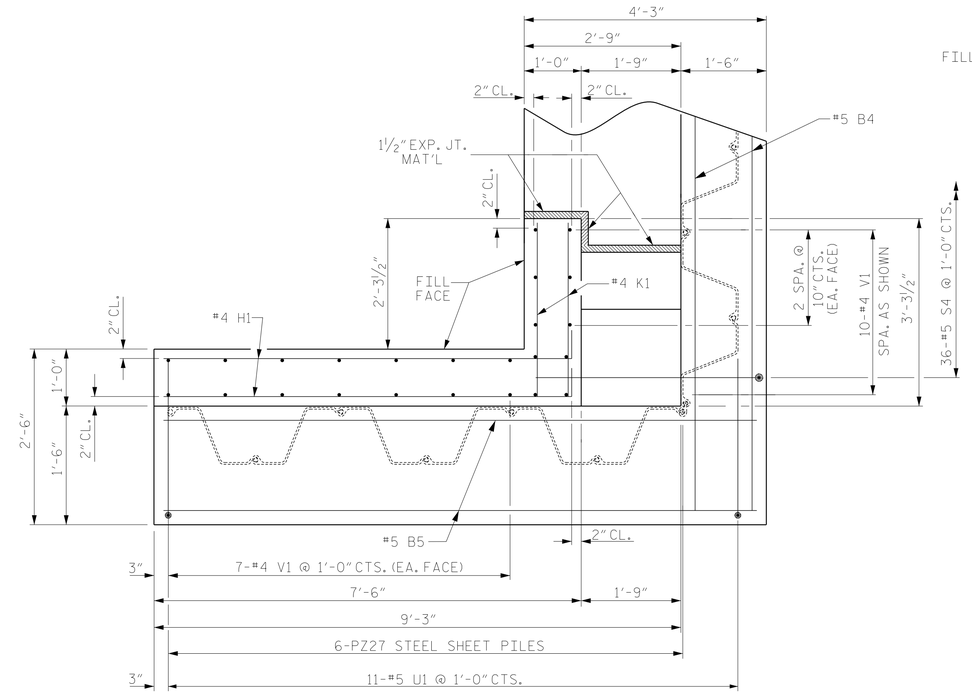
SUBSTRUCTURE

END BENT No. 2

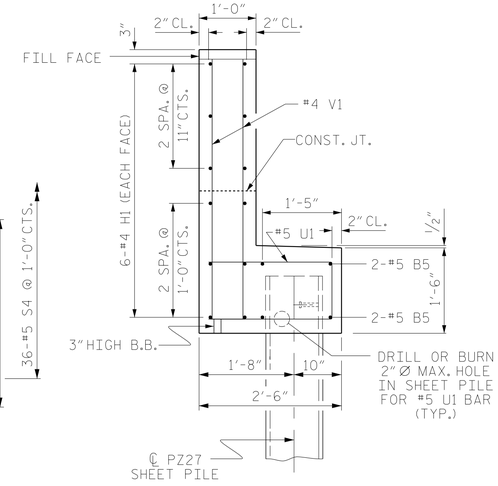
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-10
1			3			TOTAL SHEETS
2			4			14



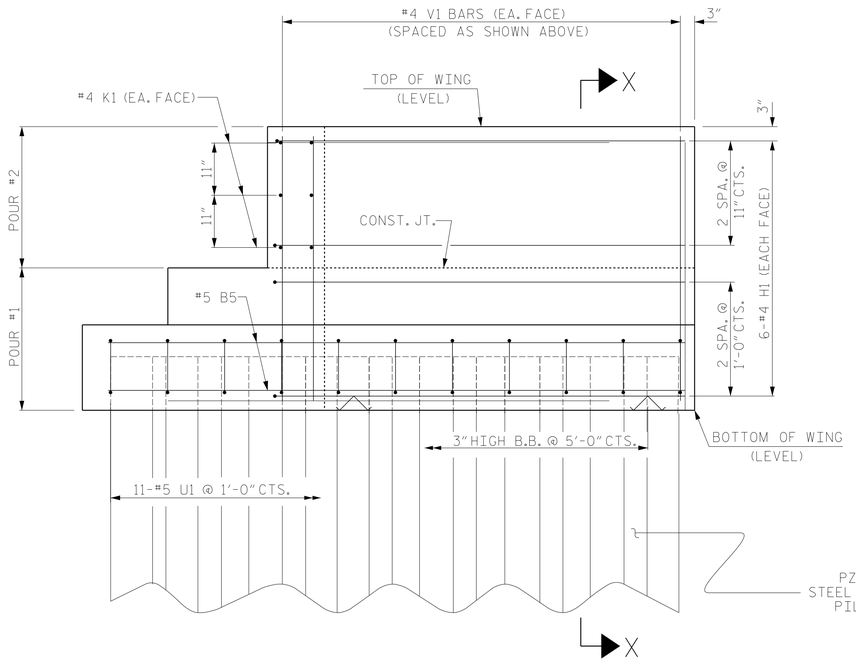
PLAN OF WING (W1)



PLAN OF WING (W2)

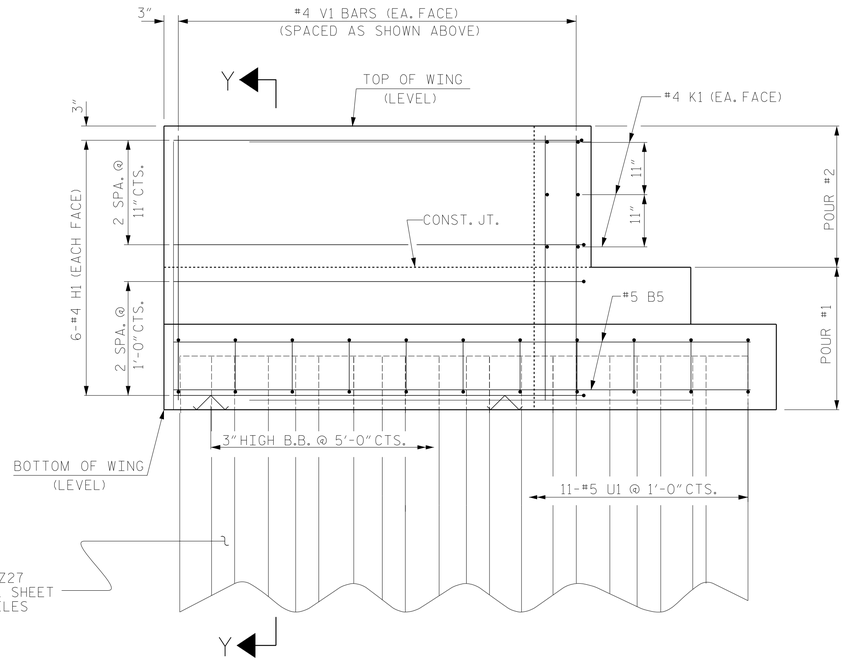


SECTION X-X



ELEVATION OF WING (W1)

POUR #3: LATERAL GUIDES NOT SHOWN FOR CLARITY



ELEVATION OF WING (W2)

POUR #3: LATERAL GUIDES NOT SHOWN FOR CLARITY

PROJECT NO. 17BP.14.R.119

TRANSYLVANIA COUNTY

STATION: 13+10.00 -L-

SHEET 3 OF 4

DRAWN BY : MAL DATE : 06/2014
CHECKED BY : TRP DATE : 07/2014
DESIGN ENGINEER OF RECORD : JMR DATE : 07/2014

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NORTH CAROLINA PROFESSIONAL SEAL 19442 ENGINEER — Docusigned by: Brandon Bollinger III — 7/26/2016

RS&H

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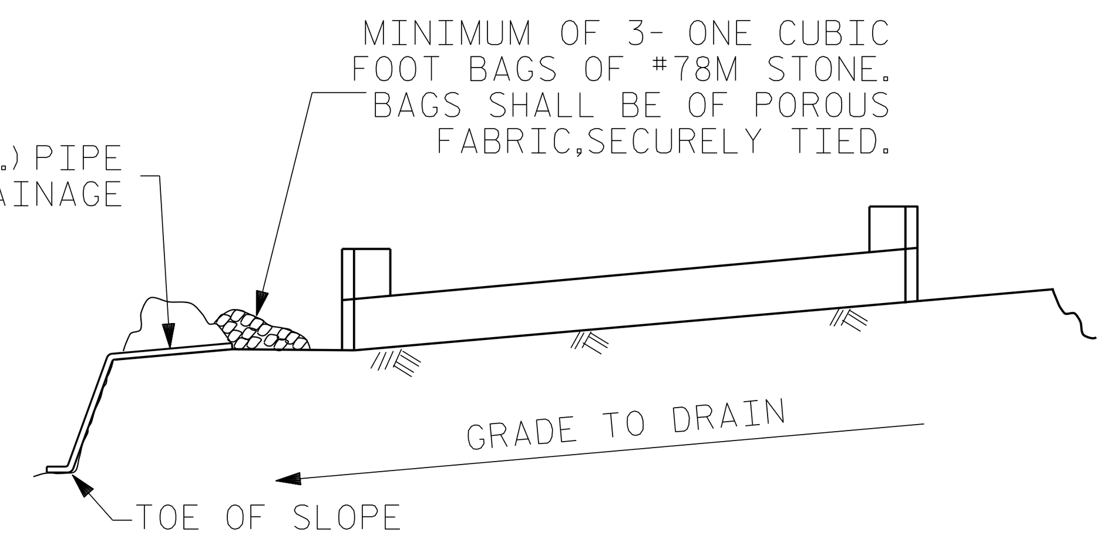
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT WING DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11
1			3			TOTAL SHEETS
2			4			14

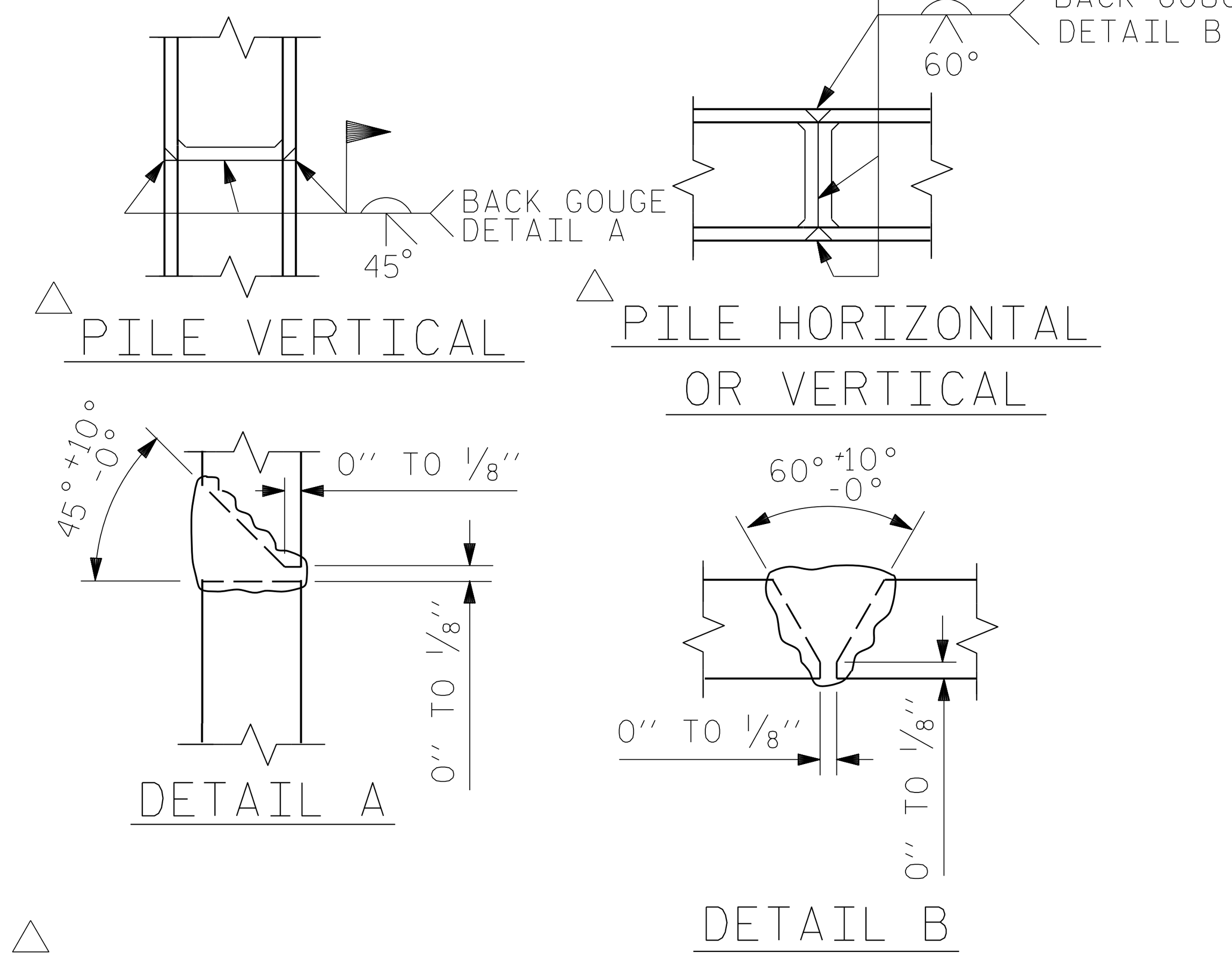


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR EFFECTIVENESS.

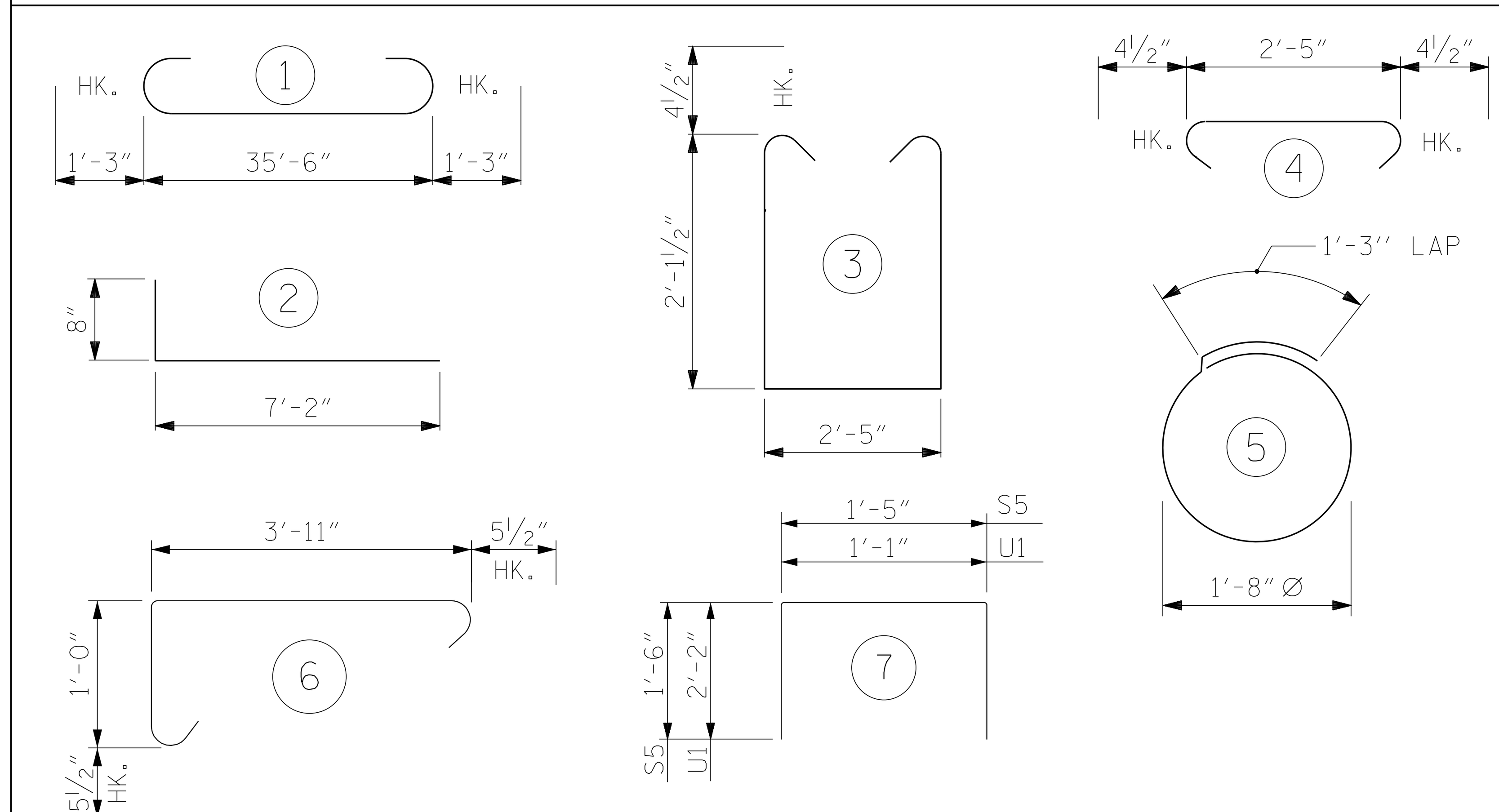
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT



PILE SPLICE DETAILS

BAR TYPES



FOR ONE END BENT

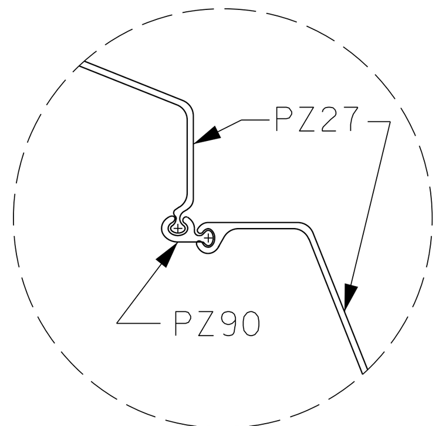
HP 12 X 53 STEEL PILES	18" STEEL SHEET PILES
NO: 5 LIN. FT.= 75	NO. PZ27 = 36
	NO. PZ90 = 2
	TOTAL NO. = 38; END BENT No. 1: 380 SQ. FT.; END BENT No. 2: 350 SQ. FT.
	STEEL PILE POINTS NO: 5

BILL OF MATERIAL
FOR ONE END BENT

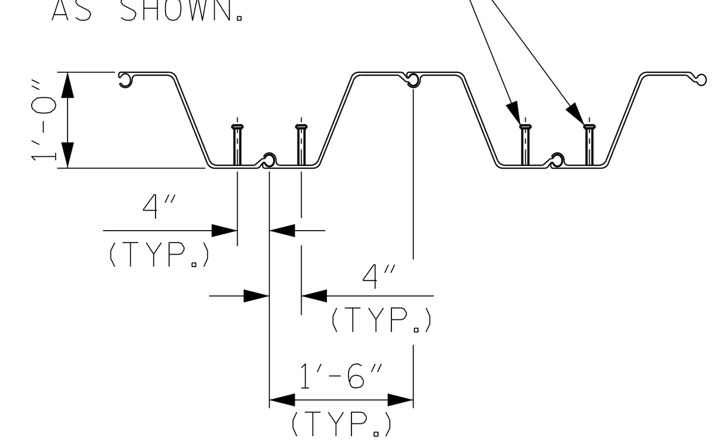
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	38'-0"	1034
B2	12	#4	STR	19'-1"	153
B3	9	#4	STR	2'-5"	15
B4	3	#5	STR	38'-8"	121
B5	8	#5	STR	10'-5"	87
D1	20	#6	STR	1'-6"	45
H1	24	#4	2	7'-10"	126
K1	12	#4	STR	2'-11"	23
S1	46	#4	3	7'-5"	228
S2	46	#4	4	3'-2"	97
S3	10	#4	5	6'-6"	43
S4	36	#5	6	5'-10"	219
S5	4	#4	7	4'-5"	12
U1	22	#5	7	5'-5"	124
V1	48	#4	STR	4'-8"	150

REINFORCING STEEL 2477 LBS.

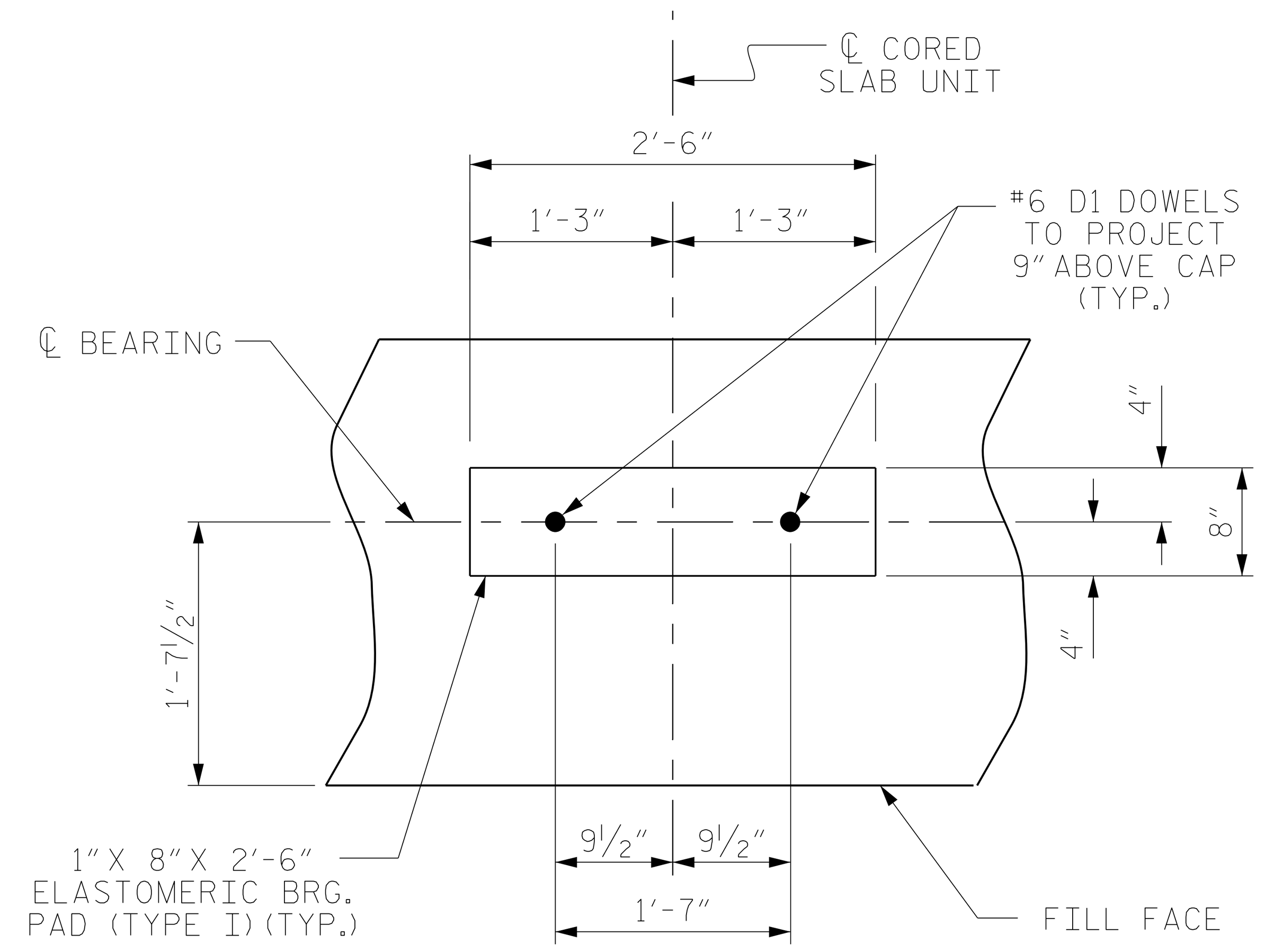
CLASS A CONCRETE BREAKDOWN	
POUR #1 CAP, LOWER PART OF WINGS, COLLARS & COPING	16.0 CU. YDS.
POUR #2 UPPER PART OF WINGS	1.8 CU. YDS.
POUR #3 LATERAL GUIDES	0.1 CU. YDS.
TOTAL CLASS A CONCRETE	17.9 CU. YDS.



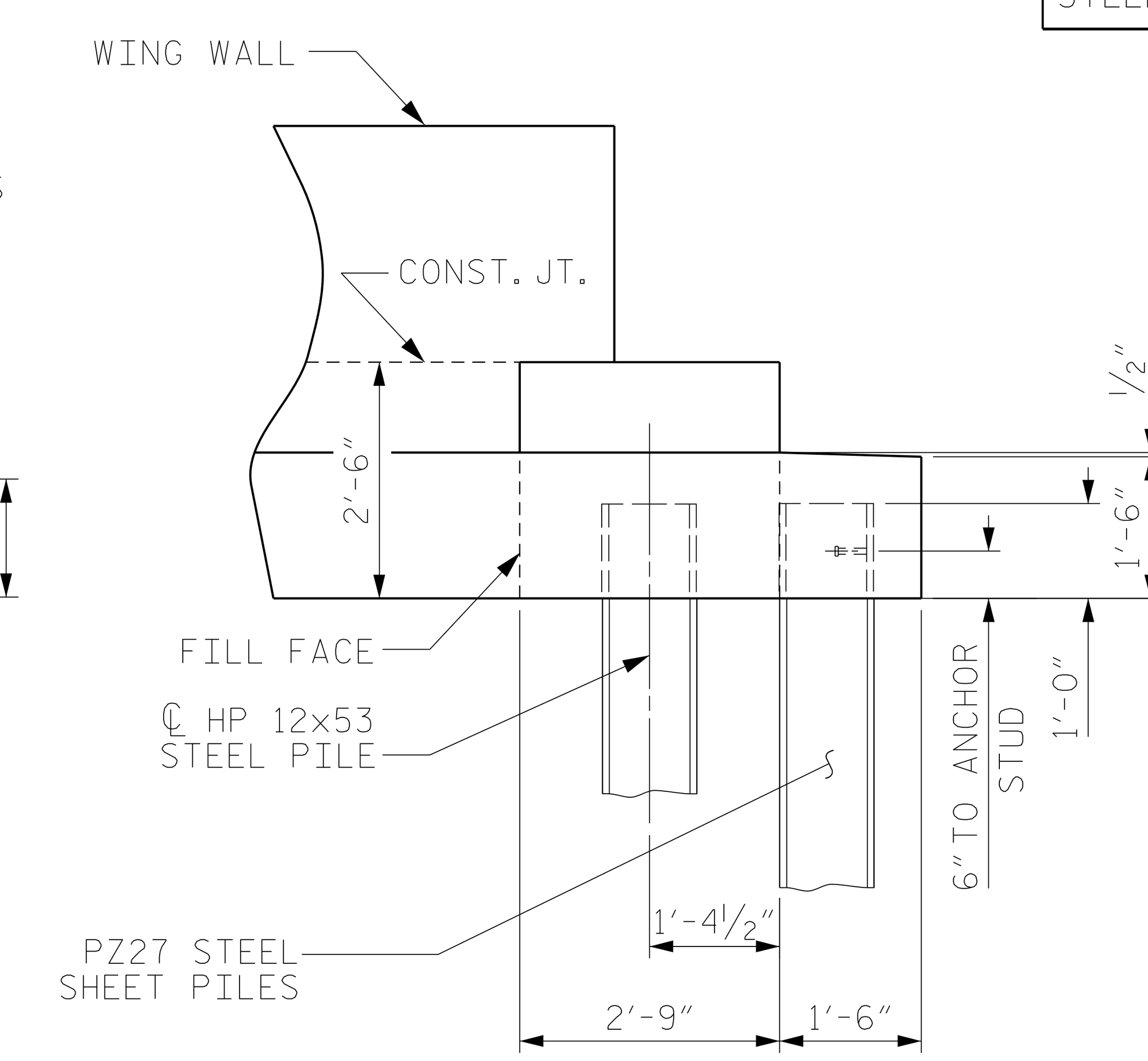
DETAIL "B"



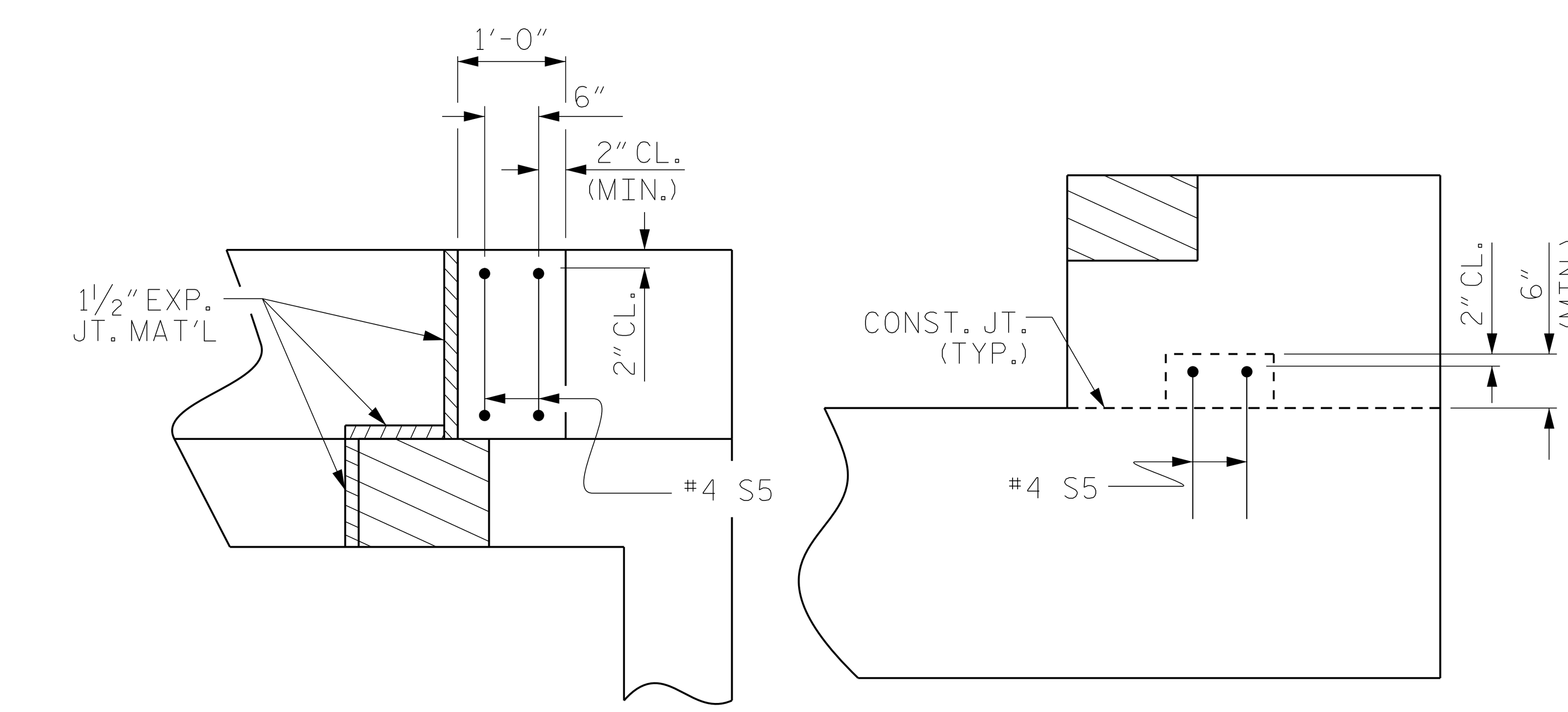
ANCHOR STUD DETAIL



DETAIL "A"

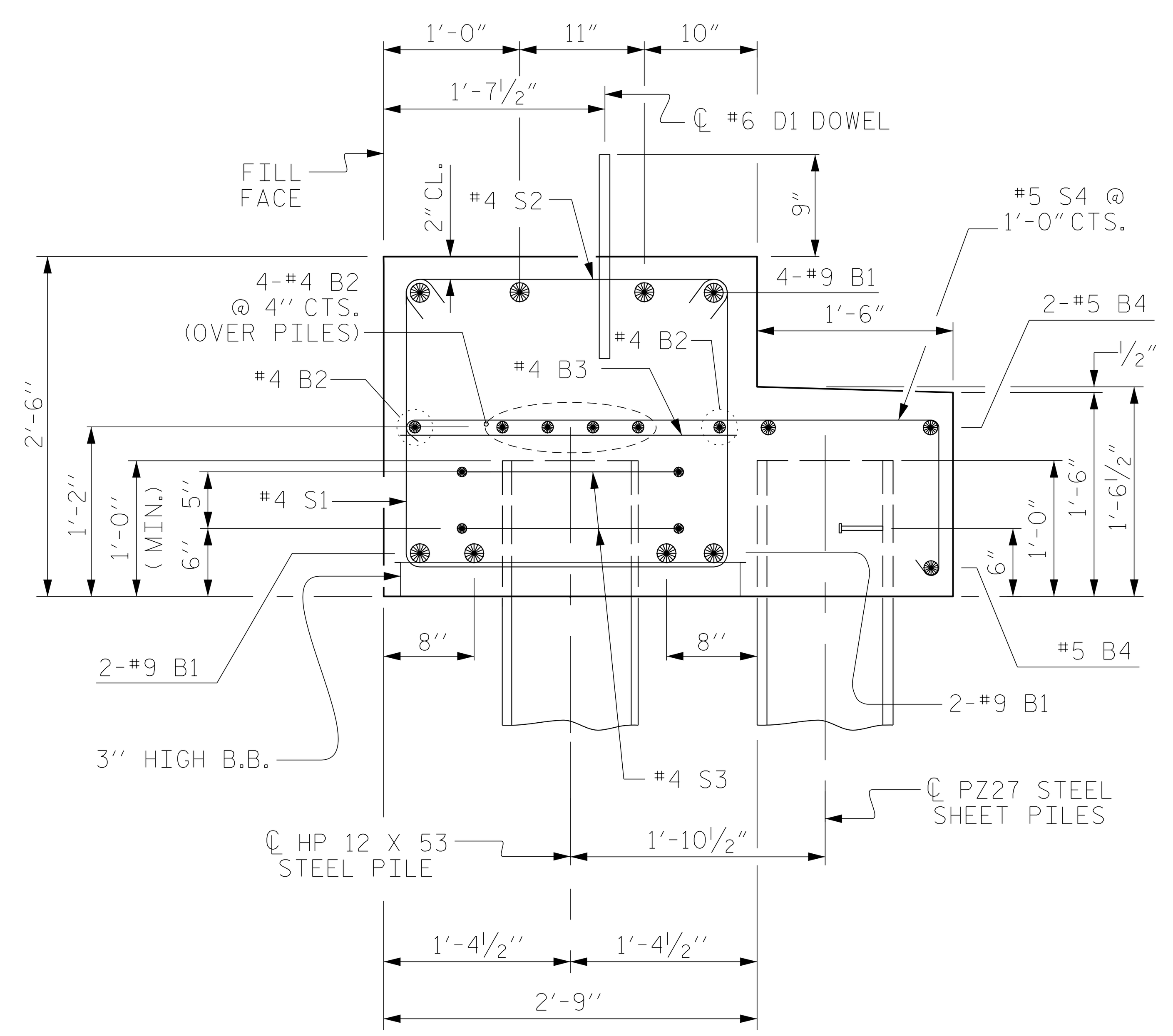


END ELEVATION

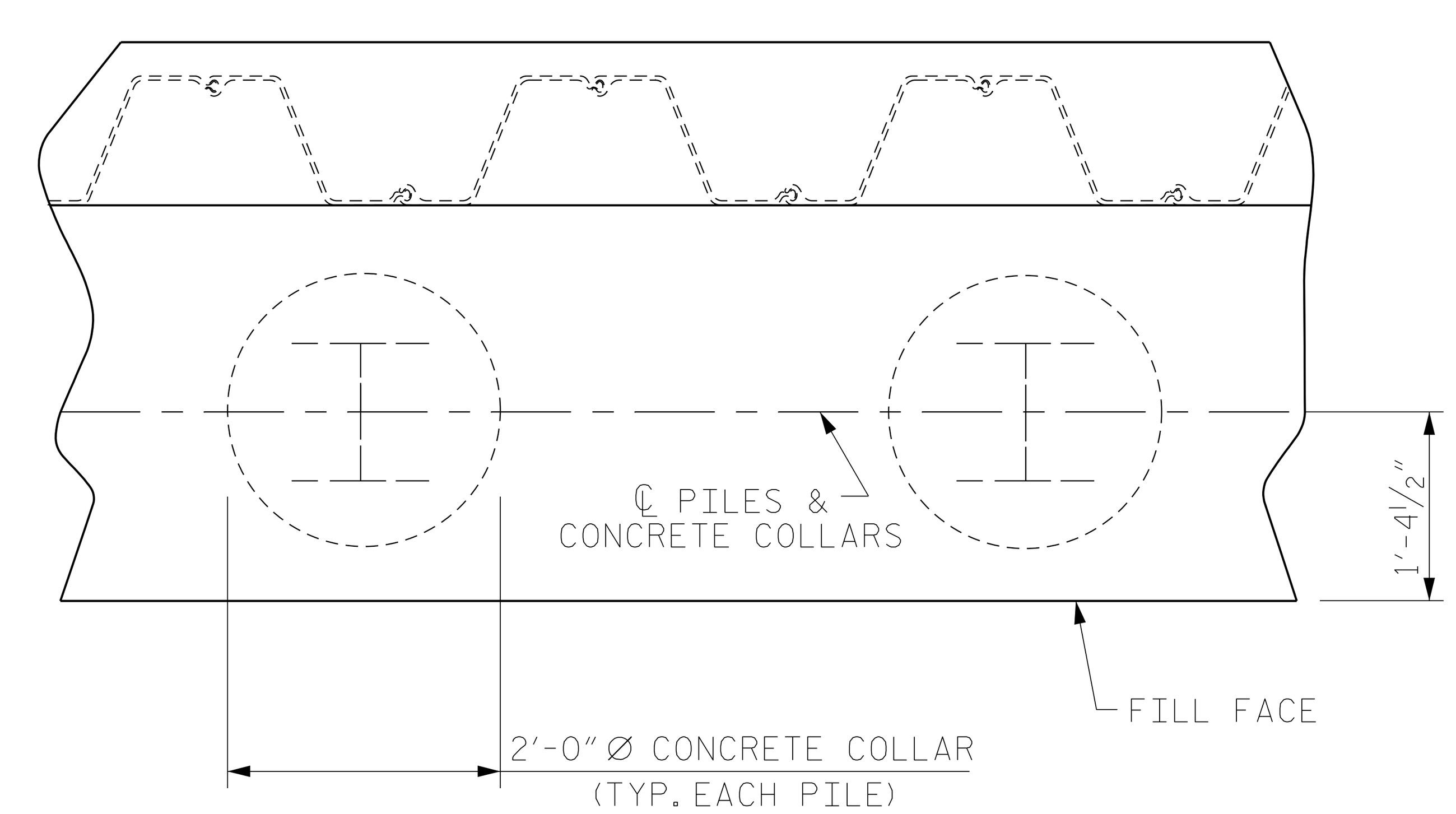


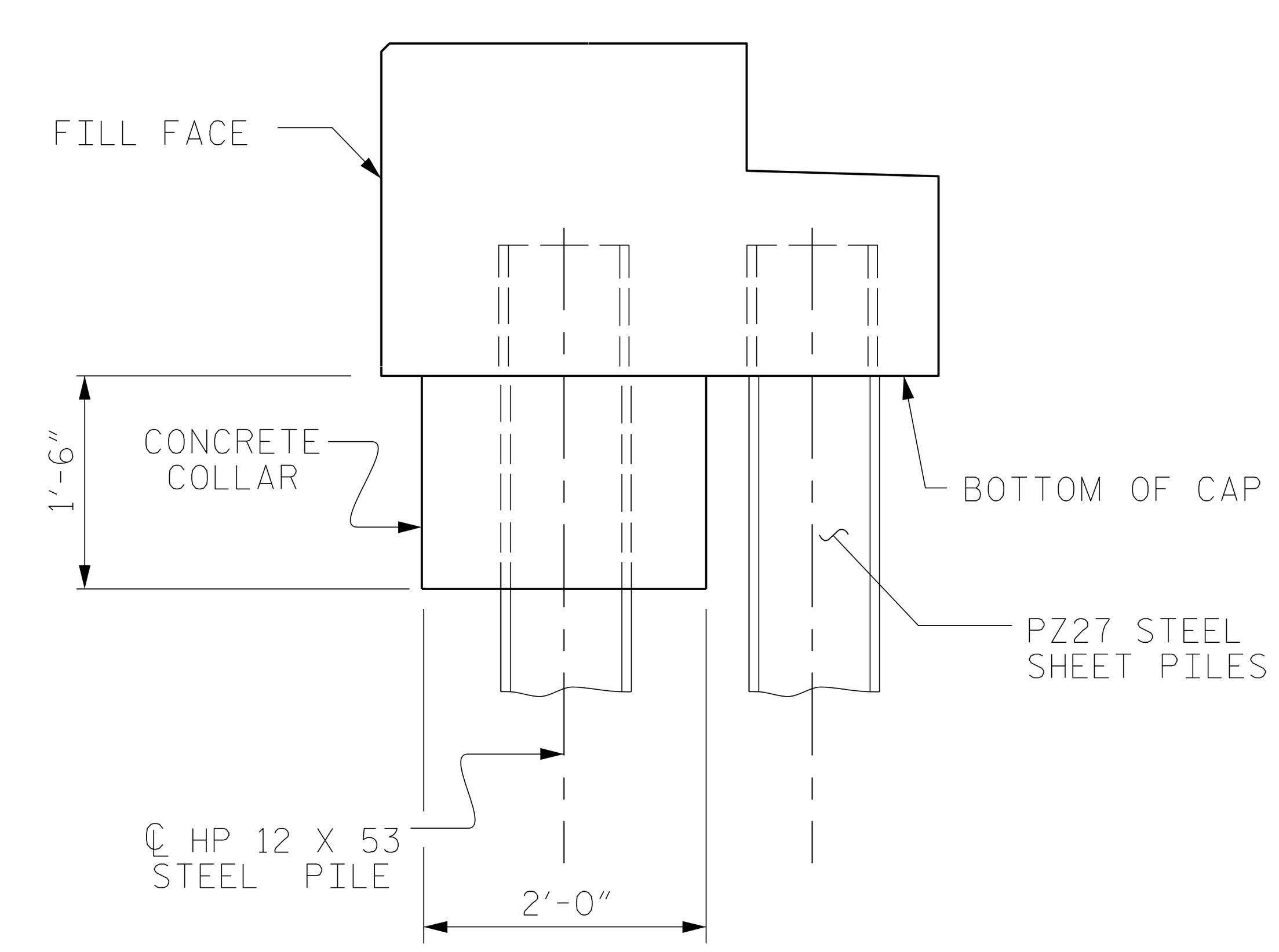
LATERAL GUIDE DETAILS

(LEFT LATERAL GUIDE SHOWN, RIGHT END SIMILAR CONCRETE COPING NOT SHOWN FOR CLARITY)



SECTION A-A





CORROSION PROTECTION FOR STEEL PILES DETAIL

PROJECT NO. 17BP.14.R.119
TRANSYLVANIA COUNTY
STATION: 13+10.00 -L-
SHEET 4 OF 4

SEAL 18442 — RICHARD LEON BOLLINGER, JR. — 5/9/2017

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT No. 1 & 2 DETAILS

DRAWN BY : MAL	DATE : 06/2014
CHECKED BY : TRP	DATE : 07/2014
DESIGN ENGINEER OF RECORD : JMR	DATE : 07/2014

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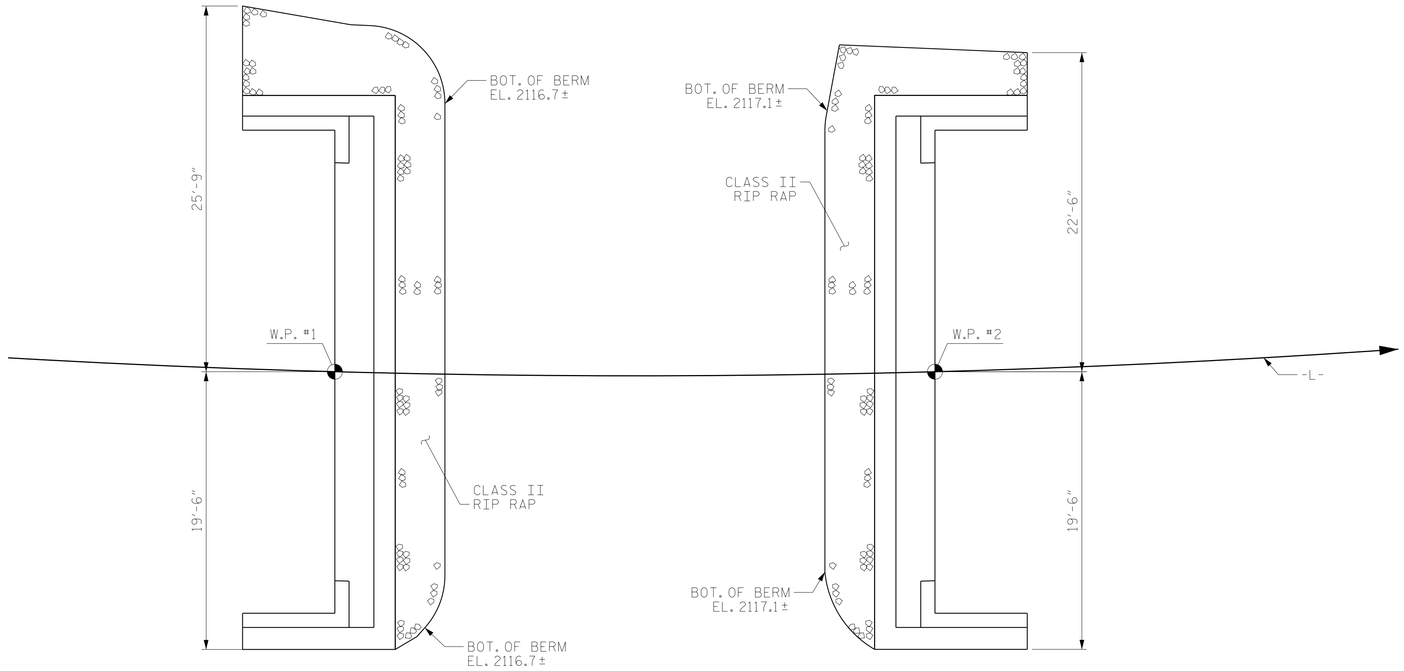
NO.	BY:	DATE:	NO.	BY:	DATE:
1	RLB	05/05/17	3		
2			4		

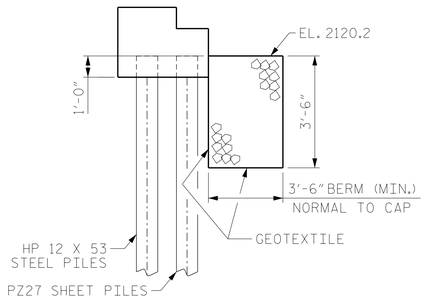
SHEET NO. S-12
TOTAL SHEETS 14



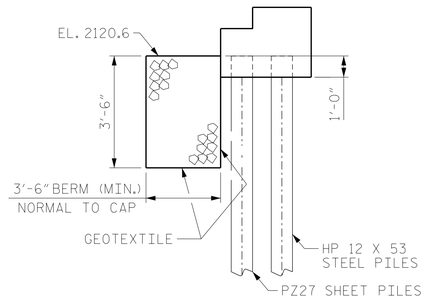
PLAN @ END BENT NO. 1

PLAN @ END BENT NO. 2

PLAN OF RIP RAP



℄ SECTION AT
END BENT NO. 1



℄ SECTION AT
END BENT NO. 2

ESTIMATED QUANTITIES		
BRIDGE @ STA. 13+10.00 -L-	RIP RAP CLASS II	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT No. 1	32	34
END BENT No. 2	31	33

PROJECT NO. 17BP.14.R.119

TRANSYLVANIA COUNTY

STATION: 13+10.00 -L-

NORTH CAROLINA PROFESSIONAL SEAL 18442 ENGINEER RICHARD LEON BOLLINGER JR
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5/9/2017

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RALEIGH

RIP RAP DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-13
1	RLB	05/05/17	3			TOTAL SHEETS
2			4			14

ASSEMBLED BY :	MAL	DATE : 06/2014
CHECKED BY :	TRP	DATE : 07/2014
DRAWN BY : REK 1/84	REV. 5/1/06R	TLA/GM
CHECKED BY : RDU 1/84	REV. 10/1/11	MAA/GM
	REV. 12/21/11	MAA/GM

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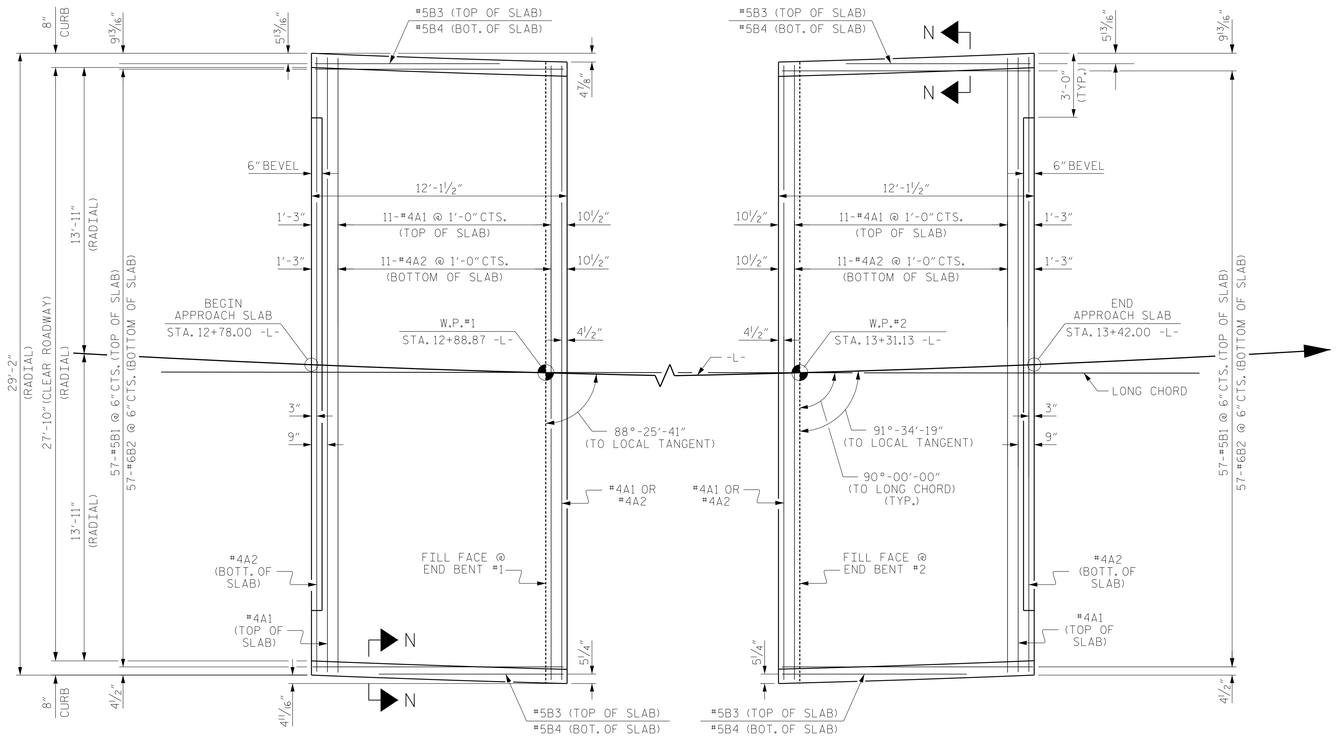


PLAN @ END BENT #1

PLAN @ END BENT #2

DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS

NOTES

FOR BRIDGE APPROACH FILL INCLUDING GEOTEXTILE, 4"Ø DRAINAGE PIPE, AND #78M STONE BACKFILL, SEE ROADWAY PLANS.

GEOTEXTILE SHALL BE TYPE 1 IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS SECTION 1056.

#78M STONE BACKFILL (CLASS V SELECT MATERIAL) SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 1016.

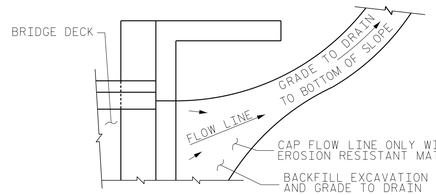
#78M STONE BACKFILL IS TO BE CONTINUOUS ALONG FILL FACE OF BACKWALL FROM OUTSIDE EDGE TO OUTSIDE EDGE OF APPROACH SLAB.

FOR THE 4"Ø DRAINAGE PIPE OUTLET(S), SEE ROADWAY STANDARD DRAWINGS.

THE OUTFALL OF THE 4"Ø DRAINAGE PIPE SHALL BE ABOVE WATER SURFACE ELEVATION AS DIRECTED BY THE ENGINEER.

AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED. SEE ROADWAY PLANS.

APPROACH SLAB GROOVING IS NOT REQUIRED.



NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT TO THE STRUCTURE. THE CONTRACTOR WILL BE REQUIRED TO REMOVE THESE MATERIALS PRIOR TO CONSTRUCTION OF THE APPROACH SLAB.

BILL OF MATERIAL

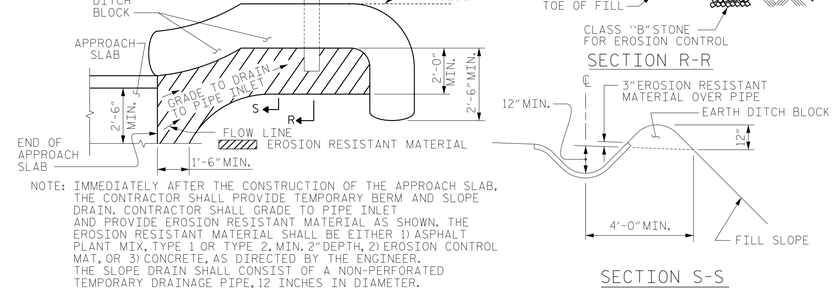
APPROACH SLAB AT EB #1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	13	#4	STR	28'-10"	250
A2	13	#4	STR	28'-10"	250
* B1	57	#5	STR	11'-2"	664
B2	57	#6	STR	11'-8"	999
* B3	2	#5	STR	8'-7"	18
B4	2	#6	STR	8'-7"	26
REINFORCING STEEL				LBS.	1275
* EPOXY COATED REINFORCING STEEL				LBS.	932
CLASS AA CONCRETE				C.Y.	16.8

APPROACH SLAB AT EB #2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	13	#4	STR	28'-10"	250
A2	13	#4	STR	28'-10"	250
* B1	57	#5	STR	11'-2"	664
B2	57	#6	STR	11'-8"	999
* B3	2	#5	STR	8'-7"	18
B4	2	#6	STR	8'-7"	26
REINFORCING STEEL				LBS.	1275
* EPOXY COATED REINFORCING STEEL				LBS.	932
CLASS AA CONCRETE				C.Y.	16.8

TEMPORARY DRAINAGE DETAIL

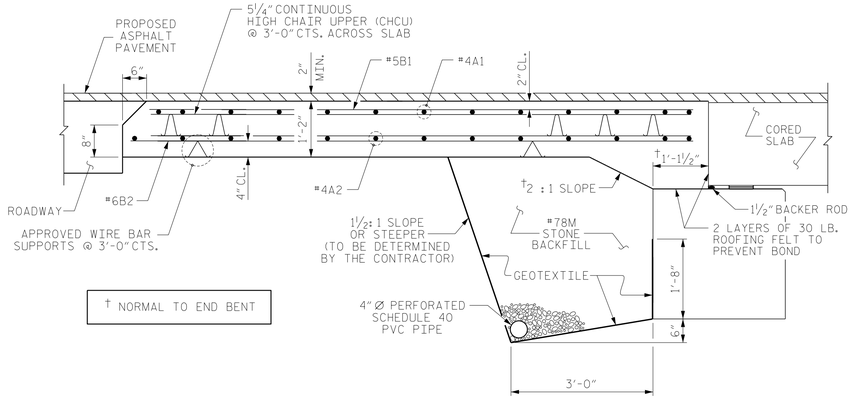


NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN. 2" DEPTH, 2) EROSION CONTROL MAT, OR 3) CONCRETE, AS DIRECTED BY THE ENGINEER. THE SLOPE DRAIN SHALL CONSIST OF A NON-PERFORATED TEMPORARY DRAINAGE PIPE, 12 INCHES IN DIAMETER.

PLAN VIEW

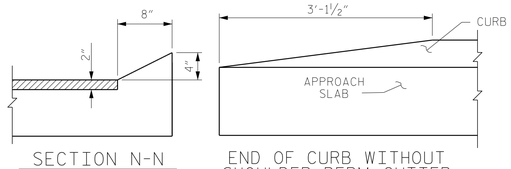
TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



SECTION THRU SLAB

SPLICE LENGTHS		
BAR SIZE	EPOXY COATED	UNCOATED
#4	2'-0"	1'-9"
#5	2'-6"	2'-2"
#6	3'-10"	2'-7"



SECTION N-N

END OF CURB WITHOUT SHOULDER BERM GUTTER

CURB DETAILS

PROJECT NO. 17BP.14.R.119

TRANSYLVANIA COUNTY

STATION: 13+10.00 -L-

DRAWN BY : MAL DATE : 06/2014
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NORTH CAROLINA PROFESSIONAL SEAL 18142 ENGINEER RICHARD EON BOLLINGER JR
7/26/2016

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD BRIDGE APPROACH SLAB FOR PRESTRESSED CONCRETE CORED SLAB UNIT (SUB-REGIONAL TIER) 90° SKEW

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-14
1			3			TOTAL SHEETS
2			4			14

STANDARD NOTES

DESIGN DATA:

SPECIFICATIONS	A.A.S.H.T.O. (CURRENT)
LIVE LOAD	SEE PLANS
IMPACT ALLOWANCE	SEE A.A.S.H.T.O.
STRESS IN EXTREME FIBER OF	
STRUCTURAL STEEL - AASHTO M270 GRADE 36	20,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50W	27,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50	27,000 LBS. PER SQ. IN.
REINFORCING STEEL IN TENSION	
GRADE 60	24,000 LBS. PER SQ. IN.
CONCRETE IN COMPRESSION	1,200 LBS. PER SQ. IN.
CONCRETE IN SHEAR	SEE A.A.S.H.T.O.
STRUCTURAL TIMBER - TREATED OR	
UNTREATED - EXTREME FIBER STRESS	1,800 LBS. PER SQ. IN.
COMPRESSION PERPENDICULAR TO GRAIN OF TIMBER	375 LBS. PER SQ. IN.
EQUIVALENT FLUID PRESSURE OF EARTH	30 LBS. PER CU. FT. (MINIMUM)

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2012 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

STEEL SHEET PILING FOR PERMANENT OR TEMPORARY APPLICATIONS SHALL BE HOT ROLLED.

CONCRETE:

UNLESS OTHERWISE REQUIRED ON PLANS, CLASS A CONCRETE SHALL BE USED FOR ALL PORTIONS OF ALL STRUCTURES WITH THE EXCEPTION THAT: CLASS AA CONCRETE SHALL BE USED IN BRIDGE SUPERSTRUCTURES, ABUTMENT BACKWALLS, AND APPROACH SLABS; AND CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP.

CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED 3/4" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 1-1/2" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A 1/4" FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A 1/4" RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

DOWELS:

DOWELS WHEN INDICATED ON PLANS AS FOR CULVERT EXTENSIONS, SHALL BE EMBEDDED AT LEAST 12" INTO THE OLD CONCRETE AND GROUTED INTO PLACE WITH 1:2 CEMENT MORTAR.

ALLOWANCE FOR DEAD LOAD DEFLECTION, SETTLEMENT, ETC. IN CASTING SUPERSTRUCTURES:

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS. SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE.

ALL DIMENSIONS WHICH ARE GIVEN IN SECTION AND ARE AFFECTED BY DEAD LOAD DEFLECTIONS ARE DIMENSIONS AT CENTER LINE OF BEARING UNLESS OTHERWISE NOTED ON PLANS. IN SETTING FORMS FOR STEEL BEAM BRIDGES AND PRESTRESSED CONCRETE GIRDER BRIDGES, ADJUSTMENTS SHALL BE MADE DUE TO THE DEAD LOAD DEFLECTIONS FOR THE ELEVATIONS SHOWN. WHERE BLOCKS ARE SHOWN OVER BEAMS FOR BUILDING UP TO THE SLAB, THE VERTICAL DIMENSIONS OF THE BLOCKS SHALL BE ADJUSTED BETWEEN BEARINGS TO COMPENSATE FOR DEAD LOAD DEFLECTIONS, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. WHERE BOTTOM OF SLAB IS IN LINE WITH BOTTOM OF TOP FLANGES, DEPTH OF SLAB BETWEEN BEARINGS SHALL BE ADJUSTED TO COMPENSATE FOR DEAD LOAD DEFLECTION, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER.

IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.

REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS.

WIRE BAR SUPPORTS SHALL BE PROVIDED FOR REINFORCING STEEL WHERE INDICATED ON THE PLANS. WHEN BAR SUPPORT PIECES ARE PLACED IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE 7/8" Ø SHEAR STUDS FOR THE 3/4" Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF 7/8" Ø STUDS ALONG THE BEAM AS SHOWN FOR 3/4" Ø STUDS BASED ON THE RATIO OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0".

EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST 5/16" IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED.

WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY 1/16 INCH OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

HANDRAILS AND POSTS:

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB.

METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. FINS AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

SPECIAL NOTES:

GENERALLY, IN CASE OF DISCREPANCY, THIS STANDARD SHEET OF NOTES SHALL GOVERN OVER THE SPECIFICATIONS, BUT THE REMAINDER OF THE PLANS SHALL GOVERN OVER NOTES HEREON, AND SPECIAL PROVISIONS SHALL GOVERN OVER ALL. SEE SPECIFICATIONS ARTICLE 105-4.

ENGLISH

JANUARY, 1990

STD. NO. SN

REV. 6-16-95 EEM (V) RGW REV. 5-7-03 RWW (V) JTE REV. 10-1-11 MAA (V) GM
REV. 8-16-99 RWW (V) LES REV. 5-1-06 TLA (V) GM